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The Class of 86 Revisited

(A Compendium of Findings)

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The Class Of 86 Revisited

A compendium of findings of the 1991 Follow-up of 1986 Graduates Survey with comparisons to the 1988 National Graduates Survey

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Prepared under contract to Human Resources Development Canada

May, 1996

SYMBOLS

The following are symbols used throughout this publication:

..	figures not available
-	nil or zero
*	numbers marked with this symbol have a coefficient of variation from 16.6% to 25% and are less reliable than unmarked numbers
**	numbers marked with this symbol have a coefficient of variation from 25.1% to 33.3% and are even less reliable than numbers marked with "*"
--	data are not reliable enough to be released; coefficient of variation is greater than 33.3%

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ACKNOWLEDGMENTS

It is impossible to fully acknowledge the individuals who played the most important role in this report: the 1986 postsecondary graduates who willingly responded to the 1988 National Graduates Survey and the 1991 Follow-up of 1986 Graduates Survey. Their responses provided the basic data tabulated in this report.

We are indebted to Human Resources Development Canada for funding and reviewing the manuscript, particularly Doug Giddings, Philip Jennings, Louise Boyer, Russ Jackson and Roger Hubley.

At Statistics Canada, the staff members of the Special Surveys Group, particularly Bill Magnus and Richard Porzuczek, provided frequent enlightenment on the different aspects of the survey design, editing and data elements. We are indebted to the methodologist responsible for the survey, Marc Joncas. We would like to thank the many other people in the Special Surveys Group who contributed immeasurably to the continued success of this series of surveys of trade/vocational, college and university graduates.

In addition to our colleagues at Human Resources Development Canada, two people at Statistics Canada reviewed the manuscript and provided valuable criticism and suggestions: Trish Horricks and Don Little.

Last but not least, we are indebted to Lorraine Johnson and Robert Pellarin for running tabulations, and designing and preparing the manuscript and supplementary tables for publication.

While we recognize the contributions of all those who helped in this project, we alone are responsible for any errors that may appear. Lynn Barr-Telford authored chapters 1 and 2, Geoff Bowlby wrote chapters 3 and 4, and Warren Clark was responsible for chapter 5.

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Highlights

- Getting established at a full-time job takes time. By 1991, the vast majority of graduates held a long-term, full-time job; a substantial increase over 1988.

- Changing economic conditions between 1988 and 1991 played a role in determining graduates' labour market success. Graduates at the trade/vocational level were particularly vulnerable to the 1990's recession. The province of Ontario was hit hard by the recession and this was reflected in a substantial increase in unemployment rates and a drop in full-time employment for career/technical and trade/vocational graduates in 1991 over levels in 1988.

- Several indicators point to the benefits of higher levels of education. In 1991, the percentage of full-time workers was highest at the doctoral level and lowest at the trade/vocational level. Only university graduates saw increases in full-time employment and decreases in their unemployment rate between 1988 and 1991. Furthermore, the higher the level of education, the lower the unemployment rate in 1991.

- Generally, the school-to-work transition favoured men over women. Women, particularly if they had children, were much more likely to work part-time or to be out of the labour force.

- Field of study also made a difference in the success of graduates. Graduates of engineering and applied sciences and commerce programs tended to have the highest levels of full-time employment.

- More than two in five graduates changed employers and/or occupations between 1988 and 1991 emphasizing the dynamic nature of graduates' labour market activities.

- Education pays. As the graduates' education level increased, so did their full-time employment earnings.

- Graduates from some fields of study were in higher demand relative to others. Engineering and applied science graduates were the best paid at university and trade/vocational levels in 1991. This differed from 1988, when health science graduates earned the most at the university level. At the career/technical level, graduates of health sciences earned the most in both years.

- Earnings in some occupations made relative gains. Between 1988 and 1991, earnings in university management & administration occupations jumped the most at that level. Graduates working in medicine and health occupations earned the most at the career/technical level, despite low growth. Because of high earnings growth, those working in product fabricating, assembling and repair jobs had the highest median earnings at the trade/vocational level in 1991.

- The gender earnings gap worsened between 1988 and 1991. Female median earnings were 86% of the male median in 1991, down from 93% in 1988. However, as the level of education increased, the gender earnings gap decreased. By 1991, female doctorates earned 98% of male doctorate salaries.

- The majority of all graduates working full-time in 1988 and 1991 had jobs that were directly related to their education. Between 1988 and 1991, the education/job relationship strengthened at all levels of education except trade/vocational, where graduates were particularly hard-hit by the recession and forced into less-related positions.

- Graduates from all university and most career/technical fields of study experienced an increase in the education/job relationship. At all levels of study, health sciences graduates were the most likely to have a directly related job.

- While the gender difference was very small for university graduates, at the career/technical and

trade/vocational levels, women were more likely than men to have directly related jobs.

- Almost all groups experienced a decrease in underemployment between 1988 and 1991. Despite this, there was at least a one in three chance that a graduate would be underemployed in 1991, depending upon the graduate's level of study.

- While male university graduates were less likely to be underemployed than female university graduates, the reverse was true at the career/technical and trade/vocational levels. In 1991, the presence of dependant children did not affect male underemployment but it did increase female underemployment.

- Between 1988 and 1991, the percentage of graduates whose employers felt that it was essential that they have previous work experience increased at all levels of education.

- The overwhelming majority of graduates were either satisfied or very satisfied with their jobs. Those with directly related jobs were highly satisfied at work. Meanwhile, underemployed graduates had relatively low job satisfaction in both 1988 and 1991.

- Three in five university graduates, half of career/technical graduates, and two in five trade/vocational graduates pursued post-graduation studies.

- Young, unmarried graduates of either sex who did not have children were much more likely to pursue further studies than older, married graduates with children. Younger university graduates tended to pursue longer programs on a full-time basis, whereas older graduates pursued shorter programs on a part-time basis.

- Women with young children were less likely than those without children to pursue further studies after graduation. When their children were older, however, their participation in post-graduation studies rebounded to almost the level of women without children.

- Completion of post-graduation studies improved the likelihood of finding full-time employment in 1991 for most graduates.

- University graduates' assessment of their program changed very little between 1988 and 1991 with about seven in ten indicating they would choose the same program again. In contrast, both career/technical and trade/vocational graduates were more likely to select a university program in 1991 than they were in 1988.

- The percentage of trade/vocational graduates who would select a college program more than doubled between 1988 and 1991.

Chapter 1. Introduction

by Lynn Barr-Telford

Overview

To compete in a global economy, characterised by rapidly changing knowledge and technologies, Canada requires an abundant supply of highly skilled, qualified labour. Given this context of continuous change in labour market conditions, the effective development of our human resources has become a central concern. The Economic Council of Canada, in a statement issued in 1992, said: "To improve productivity, trade performance, and innovation - to improve the overall competitiveness of a firm, an industry, or an entire economy - one of the critical factors is the enhancement of human skills." In that same year, the Conference Board of Canada stated: "Well-educated people who are committed to excellence and to lifelong learning are the key to the social and economic well-being of our country; they are critical to the survival and growth of Canadian businesses." To be successful in the workforce of the future, Canadians will require more education and training than in the past. Estimates from a 1993 Department of Finance report, show that almost half of the new jobs created during the decade of the 1990's will require more than 16 years of formal education and training.

Given the links being made between education, training and competitiveness, there is an acute need for information on the integration of recent postsecondary graduates into the labour market. Statistics Canada's National Graduates Surveys and Follow-up of Graduates Surveys provide such data on school-to-work transitions. These surveys, sponsored by Human Resources Development Canada, are specifically designed to obtain information on: the long-term labour market experiences of graduates; employment and occupation of a key youth group; the relationship between education/training and labour market experiences; the exposure of graduates to additional training; and the labour market experiences of members of employment equity groups (such as women, aboriginal peoples, visible minorities and persons with disabilities).

This report, also funded by Human Resources Development Canada, contains results of the Follow-up of 1986 Graduates Survey (FOG). The FOG survey took place in March 1991 and was the second time that 1986 graduates were interviewed. These graduates were first contacted in May 1988 for the National Graduates Survey (NGS). Over 35,000 respondents to the NGS who were still living in Canada were re-interviewed by telephone for the FOG. The results presented in this report represent the experiences of 1986 graduates of trade/vocational, career/technical and university programs living in Canada in both May 1988 and March 1991 (see the Text Box 1 titled *Definitions of Graduates* for further explanation).

The report looks at 1986 graduates' labour market activities, their earnings, the relationship between their education and labour market activities, and their further educational qualifications five years after graduation. The results of the FOG survey are also compared to those obtained in the NGS which was conducted two years after graduation.

Chapter 2 of this report focuses on the experiences of 1986 graduates in the labour market, covering such topics as employment, unemployment and labour force participation; long-term employment; labour market experiences of men and women, aboriginal peoples, visible minorities and persons with disabilities; and changes in labour force activities including employer and occupation change. Chapter 3 looks at the earnings of full-time workers over time, by level of education, gender, occupation, field of study (*see Text Box 2*) and other socio-demographic variables. The relationship between the education received by the 1986 graduates and the job they held in May 1988 and March 1991 is the topic of Chapter 4. This chapter also examines graduates' satisfaction with their work, previous work experience and the issue of under- and over-employment in the workplace. Chapter 5 focuses on continuing education after graduation in 1986.

TEXT BOX 1 - Definitions of Graduates

The target population for the FOG survey included all trade/vocational, college and university graduates who completed their programs in the calendar year of 1986. A graduate is someone who completed the requirements for a degree, diploma or certificate.

University graduates include those who completed a bachelor's, master's or doctoral degree or a specialized certificate/diploma. University graduates who completed first professional degrees, such as doctor of medicine, doctor of divinity and so forth, are included at the bachelor's level. The doctoral level includes earned doctorates only.

The college level includes graduates of career/technical and university transfer programs. These programs are of one year or more in duration and grant a diploma or certificate offered by a recognized community college, CEGEP, technical school, school of nursing or similar institution. This report does not include an analysis of the experiences of CEGEP graduates due to their very different labour market experiences. Only the experiences of career/technical college graduates are examined.

The trade/vocational level refers to skilled trade programs lasting 3 to 12 months that lead to a diploma or certificate offered by a recognized community college, secondary school, technical or vocational school or college, school of nursing or similar institution. Excluded are apprenticeship, basic training and skill development programs.

Only those 1986 graduates who lived in Canada in March 1991 were interviewed in the FOG survey. The 35,401 respondents to the FOG survey were weighted up to a total of 245,061 graduates, representing the population of 1986 graduates who were living in Canada in May/June 1988 and who were still living in Canada in March 1991. The results presented in this report are based on the weighted sample from the FOG survey and thus will differ from those in other Statistics Canada publications. A detailed description of the methodology of the FOG survey is provided in Appendix A.

This final chapter includes data on further studies pursued, by level of graduation in 1986, by gender, and by field of study taken in 1986. This chapter also explores the types of additional education taken by the 1986 graduates, and their retrospective choice of program.

TEXT BOX 2 - Field of Study

Field of study information (at time of graduation in 1986) was provided by institutions. To ensure comparability, field of study data from institutions was standardized by re-coding to the University Student Information System (USIS) and Community College Student Information System (CCSIS) codes developed by the Education, Culture and Tourism Division of Statistics Canada.

Respondents to the 1991 FOG were then asked to confirm field of study or specialization information for their program in 1986.

Since 1986, however, respondents may have studied in other fields.

The Economic Climate

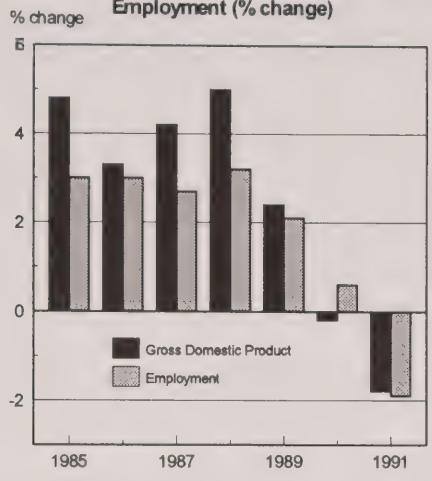
The experiences of the 1986 graduates over time must be understood within the context of a changing economy. Charts 1-1 to 1-5 provide a picture of this changing economic climate in Canada. At the time of graduation in 1986, the 1981-82 recession was over and the economy was beginning a sharp growth period. Both output (Gross Domestic Product, GDP) and employment grew throughout the mid-eighties although employment grew at a somewhat lower rate and for a slightly longer time. Businesses began to produce more with less, in other words, they were increasing efficiency.

In 1990, the Canadian economy once again entered a recession. Output fell 0.2% between 1989 and 1990 and 1.8% between 1990 and 1991. Employment growth slowed to less than 1% by 1990, and between 1990 and 1991, employment dropped 1.9%. Unemployment rates reached double-digits by 1991 after having fallen to 7.5% in 1989. The weak employment picture during the recession has been explained by the emphasis firms put on increasing productivity (output per employee) (Cross, 1992).

Job losses were heavy in the manufacturing and construction industries. Between 1989 and 1990 employment in manufacturing dropped 12.5% while the loss in contruction was 9.5%. Partly because of the concentration of manufacturing industries in Ontario, huge losses were felt in employment and output (3.8% and 5.0% respectively).

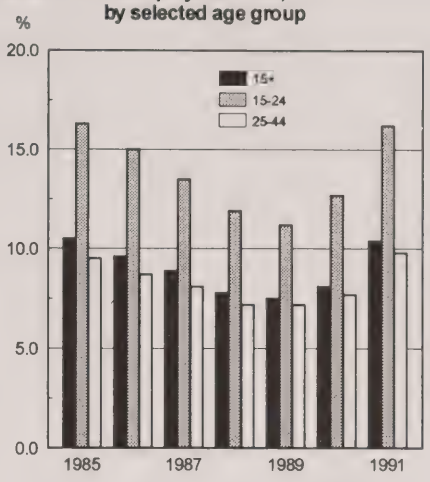
Charts 1-1 to 1-5. The economic climate of the eighties and early nineties

Chart 1-1. Gross domestic product and Employment (% change)



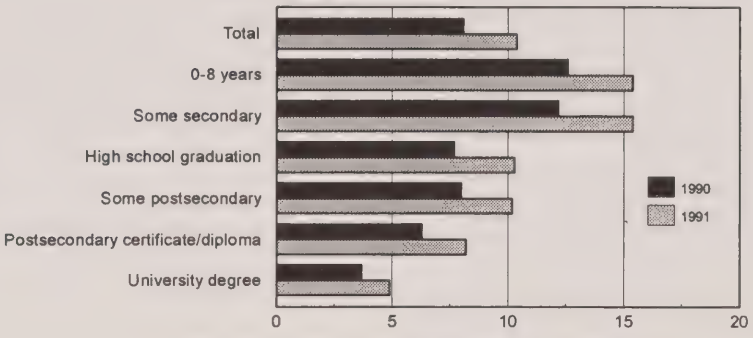
Source: National Income and Expenditure Accounts, Annual Estimates Statistics Canada, Catalogue 13-201, July 1994

Chart 1-2. Unemployment rate, by selected age group



Source: Historical Labour Force Statistics, Cansim, Statistics Canada Catalogue 71-201, 1995

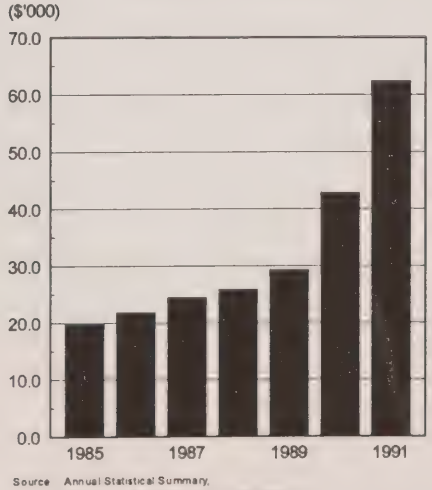
Chart 1-3. Unemployment rate, by educational attainment



Source: Historical Labour Force Statistics, Cansim, Statistics Canada, Catalogue 71-201, 1995

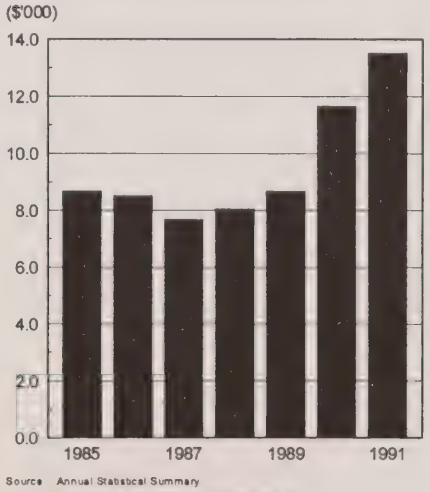
Note: Due to a change in definition, data from previous years are not comparable and therefore not shown

Chart 1-4. Personal bankruptcies



Source: Annual Statistical Summary, Office of the Superintendent of Bankruptcy, 1993

Chart 1-5. Business bankruptcies



Source: Annual Statistical Summary, Office of the Superintendent of Bankruptcy, 1993

Highlights from The Class of 86

Characteristics of the 1986 and 1982 Graduates[1]

Between 1982 and 1986 the age at graduation distribution of graduates became more uniform with increases in the percentage of graduates in younger and older age groups.

Trade/vocational graduates exhibited more previous full-time work experience than either career/technical or bachelor's graduates. At the master's and doctoral level over 40% of the 1986 graduates had less than 1 year of full-time work experience before they graduated. The primary source of new enrolment for career/technical and bachelor's programs was high school. Trade/vocational graduates mainly entered their program from the world of work, 45% working and 21% were looking for work before enrolling in their program (1986 graduates).

The percentage of graduates with disabilities changed little between 1982 and 1986 (5 percent of trade/vocational, 3% of career/technical and 2% of university in 1986). Similarly there was little change in the percentage of aboriginal graduates (5 percent of trade/vocational, 2% of career/technical and 1% of university in 1986). The 1986 Census indicated that 3% of the 20-29-year-old population are natives. This indicates that natives are under-represented among college and university graduates.

The percentage of graduates with dependent children increased slightly between 1982 and 1986, with women at most levels more likely than men to have dependent children. However, at the doctoral level in both 1982 and 1986 women were much less likely than men to have dependent children, which may indicate that dependent children act as an impediment for women to enter doctoral programs.

The educational attainment of parents of 1986 graduates varied considerably at different levels. Fifty-six percent of the trade/vocational graduates had a father who had not completed high school compared with 44% and 35% of career/technical and university graduates respectively.

Between 1982 and 1986, more women entered male-dominated fields and more men entered female-dominated fields. For example, in 1982, 10% of university engineering graduates were women compared with 12% in 1986, while in health sciences at the college level, the proportion of men rose from 11% in 1982 to 13% in 1986.

Women represented 53% of the bachelor's graduates in 1982 and 55% in 1986. At the master's and doctoral level, women were still under-represented but they gained ground between 1982 and 1986.

Part-time studies were more prevalent among the 1986 trade/vocational, career/technical and bachelor's graduates than their 1982 counterparts.

One in every four 1986 doctoral graduates moved to another province to enter the doctoral program while 1% of trade/vocational, 3% of career/technical, 6% of bachelor's and 14% of master's graduates moved to study in another province.

[1] Adapted from The Class of 86, available from the Survey Development Section, Statistics Canada K1A 0T6.

There were other indicators of hard times in the 1990's. The number of personal bankruptcies more than doubled and the number of business bankruptcies went up 56% between 1989 and 1991. Most industries experienced a large increase in the number of business bankrupticies over this period but some industries were particularly affected. Bankruptcies in the finance, insurance and real estate industry more than doubled. There were 85% more bankruptcies in the transportation, communication and other utilities industry and there was an increase of 61% in the manufacturing industry.

As a result, the economic outlook was much brighter for the 1986 graduates at the time of graduation than it was five years later. During the recession, however, there were signs of the increasing importance of education for labour market success. Although unemployment increased for all categories of educational attainment between 1990 and 1991, the unemployment rate for persons with a university degree stayed below 5% and the rate for post-secondary certificate/diploma holders was the next lowest at 8.2%. Unemployment rates for persons with less education were in the double digits. Furthermore, between 1990 and 1991 employment grew by almost 3% for persons with a university degree and fell only slightly, 0.1%, for those with a post-secondary certificate/diploma. By contrast, employment decreased 4.5% for those with a high school diploma or less. These data from the Labour Force Survey suggest that job prospects were better for persons with higher levels of education.

REFERENCES AND NOTES

1 Cross, Philip. *The labour market: Year-end review*, **Perspectives on Labour and Income**, Statistics Canada, Catalogue 75-001, Spring 1992.

2 ***A New Framework for Economic Policy***. Ottawa: Department of Finance Canada, 1994. The data are from Human Resources Development Canada, Canadian Occupational Projection System, 1993.

3 ***A Lot to Learn: Education and Training in Canada***. A Statement by the Economic Council of Canada. Ottawa: Minister of Supply and Services Canada, 1992.

4 McLaughlin, Maryann. ***Employability Skills Profile: What are Employers Looking For?*** Ottawa: The Conference Board of Canada, 1992.

Chapter 2. 1986 Graduates in the Labour Market

by Lynn Barr-Telford

Introduction

Go to school, graduate, get a job – the transition from student life to the work force appears to be a simple process. The school-to-work transition, however, is anything but simple. Several factors including economic conditions, level of education, gender and field of study affected the school-to-work transition of 1986 graduates. Furthermore, the 1986 graduates experienced considerable change in their work and education activities.

Getting established at a full-time job takes time. Five years after graduating, most of the 1986 graduates were employed full-time. By 1991, the overwhelming majority of graduates had held a long-term, full-time job, a substantial increase since 1988. Immediately after graduating, many graduates, particularly at the bachelor's level, delayed their search for full-time employment as they continued their education and many worked part-time. As a result, full-time employment was at a higher level in 1991 than in January 1987.

Changing economic conditions between 1988 and 1991 played a role in determining graduates' labour market success. Graduates at the trade/vocational level were particularly vulnerable to the 1990's recession. The province of Ontario was hit hard by the recession and this was reflected in a substantial increase in unemployment rates and a drop in full-time employment for career/technical and trade/vocational graduates between 1988 and 1991.

Several indicators point to the benefits of higher levels of education. In 1991, the percentage of full-time workers was highest at the doctoral level and lowest at the trade/vocational level. Only university graduates saw increases in full-time employment and a drop in their unemployment rate between 1988 and 1991. Furthermore, the higher the level of education, the lower the unemployment rate in 1991.

Generally, the school-to-work transition favoured men over women. Women, particularly if they had children, were much more likely to work part-time and to be out of the labour force.

Field of study also made a difference in the success of graduates. Graduates of engineering and applied sciences and commerce programs tended to have the highest levels of full-time employment.

Over 2 in 5 graduates changed employers and/or occupations between 1988 and 1991 emphasizing the dynamic nature of graduates' labour market activities.

This chapter looks at the school-to-work transitions of 1986 university, career/technical and trade/vocational graduates, focusing on their labour market experiences in 1991 compared to when they were first interviewed in 1988. The chapter is divided into two main sections. The first section looks at the labour market success of 1986 graduates in the five years following graduation. This section examines the labour force status of graduates at various times since graduation and compares the labour market success of 1986 and 1982 graduates. It also looks at the incidence of unemployment in 1990, the type of employment obtained, and how demographics, co-operative education programs, province and field of study affected graduates' labour force activities.

The second section focuses in more detail on changes in labour market activities such as changes from full-time to part-time employment and changes in employers, occupations, and industries.

I. How did graduates fare in the labour market?

The percentage of graduates employed full-time is a key indicator of their successful transition into the work force. (*see Text Box 1*) Five years after graduation, the majority of the 1986 graduates were employed full-time. Doctoral graduates had the greatest success finding full-time employment while trade/vocational graduates had the least.

Table 2-1. Labour force status of 1986 graduates, Jan 1987, Oct 1987, May 1988 and March 1991

		Employed			Unemployed[1]	Not in labour force
		Total	Full-time	Part-time		
		%				
Total university	January 1987	79	65	14	6	15
	October 1987	83	71	12	5	13
	May 1988	85	75	9	8	7
	March 1991	88	80	9	6	6
Bachelor's	January 1987	78	64	15	6	16
	October 1987	82	70	13	5	13
	May 1988	84	75	9	9	7
	March 1991	88	79	8	6	6
Master's	January 1987	85	74	11	5	10
	October 1987	87	76	11	4	10
	May 1988	86	77	8	6	8
	March 1991	91	81	10	4	5
Doctorate	January 1987	92	84	8	3	5
	October 1987	95	87	8	2	4
	May 1988	93	86	6	5	3
	March 1991	97	91	5	2	1*
Career/ technical	January 1987	83	70	13	9	8
	October 1987	88	78	11	5	7
	May 1988	90	82	8	7	3
	March 1991	88	80	8	7	5
Trade/ vocational	January 1987	71	58	12	21	9
	October 1987	80	69	11	13	7
	May 1988	80	70	10	15	5
	March 1991	75	66	8	17	8

[1] The percentage of unemployed is the number unemployed expressed as a percentage of all graduates. This is not an unemployment rate.

There was very little difference in the percentages of bachelor's, master's and career/technical graduates working full-time in 1991.

The likelihood of graduates being employed full-time is affected by factors such as their level of education, their field of study, demographics, the economic conditions in their province of residence and whether or not they opted to work part-time or delayed looking for full-time work.

Labour Market Success in the Long and Short Term

Table 2-1 shows the changing labour market status of graduates over time. Changes in labour market status over two periods of time are discussed: between January 1987 and March 1991, referred to as the long term, and between May 1988 and March 1991, referred to as the short-term.

The importance of examining graduates' labour market transition over an extended period of time is evident. The long-term trend showed an increase in full-time employment at all levels of graduation. In the period immediately following graduation, many graduates continued their education and many worked part-time thus delaying the search for full-time employment. In the short-term, full-time employment fell for career/technical and trade/vocational graduates but continued to increase for university graduates. Similarly, university graduates saw an improvement in their unemployment rates in the short term but this was not the case for career/technical and trade/vocational graduates. The 1986 trade/vocational graduates were especially vulnerable to the effects of the recession of the early 1990's.

The long-term – January 1987 to March 1991

a) Employment

Finding and settling into full-time employment takes time. The 1986 graduates were much more likely to be employed full-time five years after graduation than they were just following graduation.

While full-time employment was up, there was a decrease in part-time employment in the long-term, particularly at the bachelor's level. For several graduates, part-time work was a temporary arrangement in January 1987. The majority of graduates who worked part-time in January 1987 had

TEXT BOX 1 - Labour Force Definitions

Employed full-time: graduates working at a job or business thirty or more hours per week.

Employed part-time: graduates working at a job or business less than thirty hours per week.

Unemployed: graduates not working but looking for work as well as those who have accepted a full-time job to start in the future.

Labour force: graduates working (employed), not working but looking for work (unemployed) and graduates not working but have accepted a full-time job to start at a definite date in the future (unemployed).

Not in the labour force: graduates who are not working and not looking for work or are unavailable for work.

Unemployment rate: the number of unemployed graduates as a percentage of the number of graduates in the labour force (employed and unemployed).

Labour force participation rate: the number of graduates in the labour force as a percentage of all graduates.

Labour force status: whether graduates are employed, unemployed or out of the labour force.

switched to full-time employment by 1991: 69% of bachelor's, 56% of master's, 84% of doctoral, 71% of career/technical and 59% of trade/vocational graduates

b) Labour Force Participation

Just after graduation, many 1986 graduates delayed their search for full-time work while they continued their education. The particularly large increase in the percentage of bachelor's graduates working full-time illustrates this point. In January 1987, many of the bachelor's graduates, 16%, were not working and were not looking for work; that is, they were out of the labour force. Most of these bachelor's graduates (87%) were still in school. By 1991, over two-thirds of the bachelor's graduates who were not in the labour market in January 1987 had full-time jobs.

Labour force participation also increased significantly for master's, doctoral and career/technical graduates between January 1987 and 1991. Again, many of these graduates who delayed their search for jobs were attending school. Fifty-five percent of doctoral, 82% of master's, and 76% of career/technical graduates who were not in the labour force in January 1987 were still going to school.

c) Unemployment

The higher the level of education, the lower the unemployment rate. In the long-term, trade/vocational graduates had the highest unemployment rate. These graduates did, however, have more success finding employment in 1991 than in January 1987. At the career/technical level, the unemployment rate was somewhat lower in the long-term and there was not much change at the university level (Chart 2-1).

The Short-term – May 1988 to March 1991

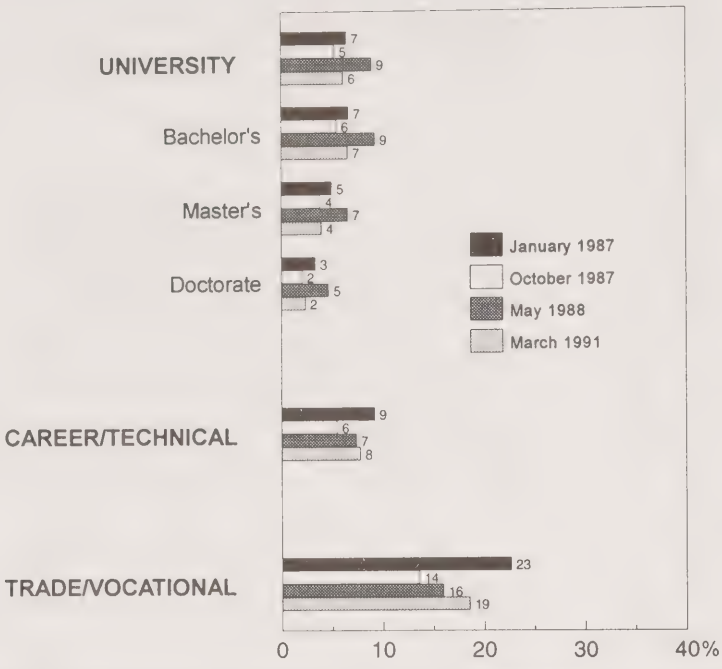
Between May 1988 and March 1991, conditions in the Canadian economy changed dramatically as Canada officially entered a recession in 1990. According to Statistics Canada's Labour Force Survey, the unemployment rate for all Canadians aged 15 and over was 7.7% in May 1988. By March 1991, the unemployment rate was up to 10.6%.

In spite of worsening labour market conditions, more university graduates were working full-time, more participated in the labour force, and fewer were unemployed in 1991 than in 1988. By contrast, fewer career/technical and trade/vocational graduates were working full-time and fewer participated in the labour force. The unemployment rate for trade/vocational graduates was higher in 1991 but remained relatively unchanged for career/technical graduates.

a) Employment

The percentage of full-time workers increased for all levels of university graduates between 1988 and 1991. At the career/technical level, the percentage of full-time workers was down slightly but the decrease was greatest at the trade/vocational level.

Chart 2-1. Unemployment rates, January 1987, October 1987, May 1988 and March 1991



b) Labour Force Participation

Most of the university graduates participated in the labour force in 1988. Three years later, the labour force participation rate of bachelor's graduates had increased marginally to 94%, the rate for master's graduates was up to 95% and the rate for doctoral graduates rose to 99%. As was the case for university graduates, most of the career/technical and trade/vocational graduates were in the labour force in 1988 (97% and 95% respectively). Three years later, however, their labour market participation rates dropped to 95% and 92%.

c) Reasons for Not Participating in the Labour Force

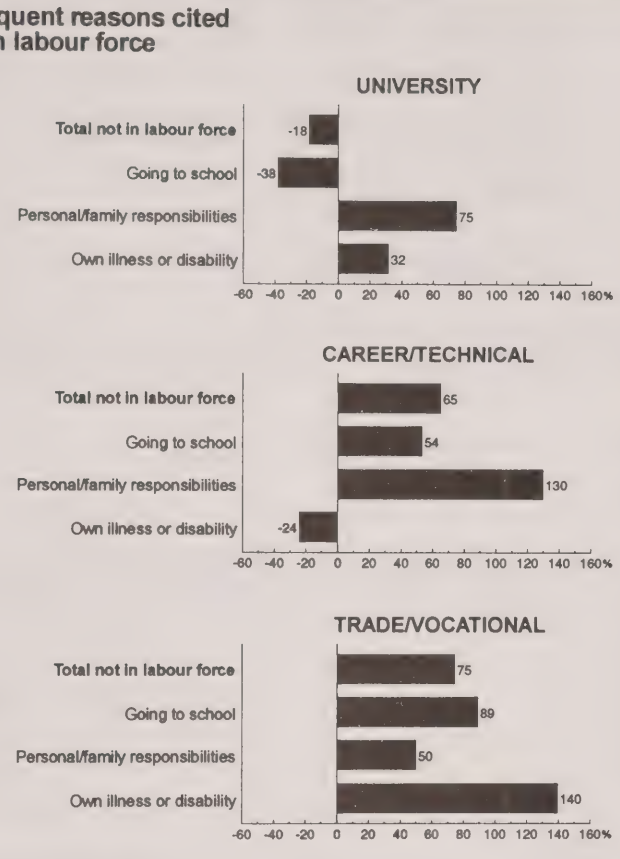
At all levels of graduation, "going to school" and "personal or family responsibilities" were reasons frequently given for being out of the labour force in 1988 and 1991. At the trade/vocational level, "own illness or disability" was also an often cited reason[1].

Graduates moved in and out of the labour force as they moved in and out of the education system. Far fewer university graduates were out of the labour market in 1991 because they were going to school which explains the increase in the labour force participation rate for unversity graduates. By contrast, more career/technical and trade/vocational graduates were out of the labour force in 1991 because they were continuing their education (Chart 2-2).

The increase in the number of career/technical and trade/vocational graduates going to school may be partly explained by the time of year the surveys were undertaken. In 1988, many graduates would be out of school looking for summer work or on vacation but, in 1991, individuals pursuing additional education would likely be in school. The increase may also reflect changing economic conditions. In a recession, jobs are hard to find and there is greater incentive to return to school. In addition, it may be that persons who attend university have an established educational path to follow; that is, one obtains a bachelor's degree and proceeds to a master's and then a doctoral degree if desired. When surveyed in 1988, university graduates who were out of the labour force because they were attending school may have been part of this planned education continuum. Five years after the initial graduation most university graduates would have completed this educational path. The educational path for graduates at the career/technical and trade/vocational levels is not so well-defined.

At all levels, more graduates were out of the labour force due to "personal or family responsibilities" in 1991 than in 1988. At the career/technical level, there was a substantial increase in the number of graduates out of the labour force because of "personal or family responsibilities". At the university level, however, the increase was not large enough to offset the decrease in the number attending school. As will be discussed later in this chapter, most of the graduates out of the labour force due to "personal or family responsibilities" were women.

Chart 2-2. Percentage change between May 1988 and March 1991 in the number of graduates out of the labour force, by reason



Most frequent reasons cited for not in labour force	University		Career/technical		Trade/vocational	
	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991
	% distribution					
Going to school	70	53	36	34	24	25
Personal/family responsibilities	13	28	34	48	37	32
Own illness or disability	–	3**	9**	4*	14	19

At the trade/vocational level, there was also an increase in the number of graduates out of the labour force due to own illness or disability. The percentage of graduates with a disability was higher at this level than at the university or career/technical levels.

d) Unemployment

Unemployment rates are a critical measure of labour market success and for the 1986 graduates, the higher the education level at which they graduated, the lower the unemployment rate was in 1991.

In both 1988 and 1991, the unemployment rate was highest for trade/vocational graduates and this rate was higher in 1991 than in 1988. The unemployment rate for university graduates peaked in May 1988. Unemployment rates tend to be higher at this time because many students are searching for summer jobs. Between 1988 and 1991, the unemployment rate for university graduates at all levels dropped. At the career/technical level, the unemployment rate remained relatively stable.

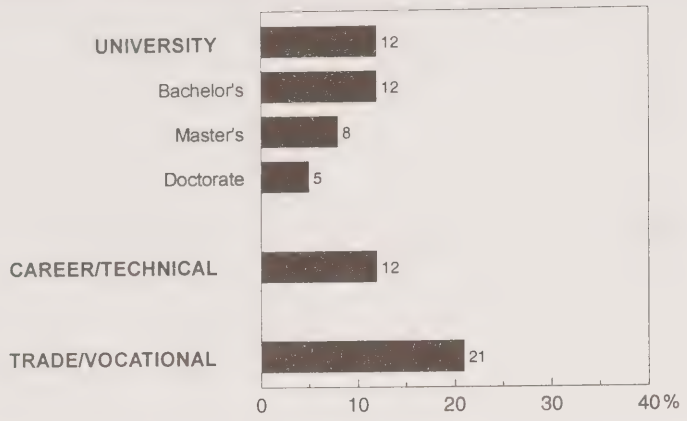
The data suggest that graduates at lower levels of education may be more vulnerable to changes in economic conditions. The 1990's recession had its greatest impact on the 1986 trade/vocational graduates who experienced a decrease in full-time employment and labour force participation and an increase in unemployment. Trade/vocational graduates also had the highest incidence of unemployment in 1990.

e) Unemployment in 1990[2]

Not only did trade/vocational graduates have the highest unemployment rate in 1991, they were also the most likely to have experienced at least one month of unemployment during 1990 (Chart 2-3).

On average, trade/vocational graduates who were unemployed in 1990 also spent about a month longer without work than did bachelor's, master's or career/technical graduates. Unemployed trade/vocational graduates were without work for an average of 5.4 months compared with 4.3 for bachelor's, 4.4 for master's, 4.7 for doctoral and 4.3 for career/technical graduates.

Chart 2-3. Percentage of graduates experiencing at least one month of unemployment in 1990



f) Type of Jobs: Temporary or Permanent, May 1988 and March 1991

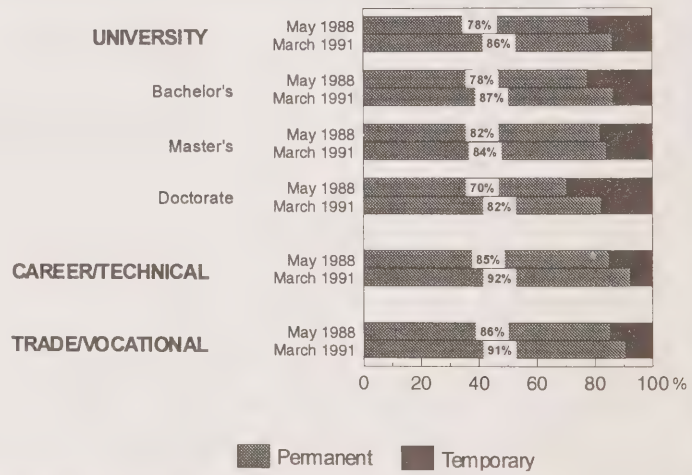
Full-time employment is one indicator of the degree to which graduates were successful in their search for jobs in 1988 and 1991. Another indicator is whether or not the jobs held were permanent or temporary positions (*see Text Box 2*). Most of the graduates who were employed full-time in 1991 had permanent jobs.

Workers in 1991 tended to be in stable jobs. At all levels of graduation, the percentage of workers with a permanent job was higher in 1991 than in 1988 (Chart 2-4). Interestingly, the percentage of workers with permanent jobs was lowest at the doctoral level. About half of the employed doctoral graduates worked in teaching occupations, particularly university teaching occupations. University teaching positions are often of a contractual rather than permanent nature.

Part-time workers were much less likely to have permanent positions than graduates employed full-time (Chart 2-5). This difference was particularly apparent among university graduates. For many graduates, part-time work is intended to be a temporary employment situation. Many graduates worked part-time in 1991 because they could only find part-time work or because they were going to school. Graduates, especially at the university level, who worked part-time for these reasons were much more likely to have temporary jobs than were graduates working part-time for other reasons such as personal or family responsibilities or not wanting to work full-time.

By 1991, 66% of bachelor's, 67% of master's, 70% of doctoral, 71% of career/technical and 57% of trade/vocational graduates were working at full-time permanent jobs. Only at the trade/vocational level did the

Chart 2-4. Percentage of paid workers in permanent or temporary jobs, May 1988 and March 1991

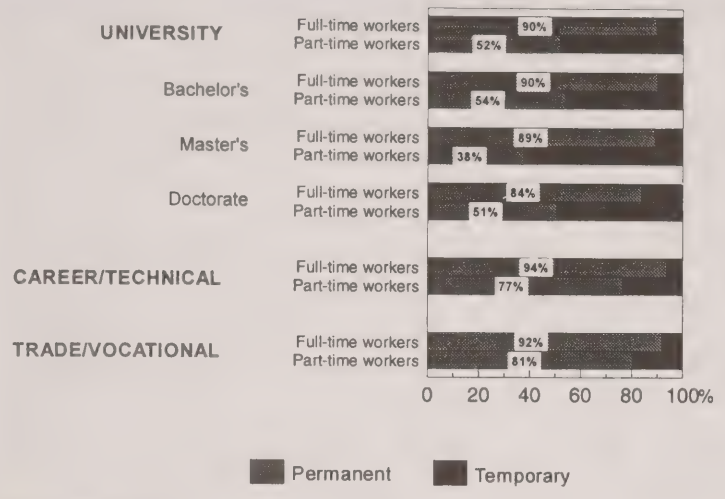


TEXT BOX 2 -Types of Employment

Temporary/Permanent job: most of the 1986 graduates who were employed in 1988 and 1991 worked for someone else in exchange for a wage or salary. They were asked if the job they held was a temporary or permanent job. Temporary jobs are scheduled to end at some definite point in time whereas permanent jobs are expected to last indefinitely.

Long-term, full-time job: graduates were asked if they had ever worked at a job full-time (30 or more hours per week) for a period of at least six months since graduating.

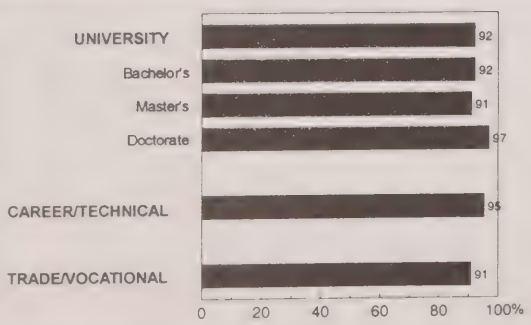
Chart 2-5. Percentage of full-time and part-time paid workers in permanent or temporary jobs in March 1991



percentage of graduates with a full-time permanent job drop between 1988 and 1991. This decrease coincided with the overall drop in full-time employment at this level. Permanent full-time employment did not, however, fall as much as total full-time employment. At this level, there were far fewer graduates in temporary full-time positions in 1991 than in 1988.

Total full-time employment also fell at the career/technical level, but this was not the case for permanent full-time employment. There were fewer career/technical graduates with temporary full-time jobs in 1991 than in 1988.

Chart 2-6. Percentage of graduates who have held a long-term, full-time job since graduation



g) Long-term, full-time jobs, May 1988 and March 1991

The percentage of graduates with a long-term, full-time attachment to a job increased dramatically between 1988 and 1991. By 1991, the overwhelming majority of graduates, ranging from 91% for master's and trade/vocational graduates to 97% for doctoral graduates, had held a 6 month or more, full-time job at some point during the five years since graduation (Chart 2-6).

Labour Market Success: 1986 and 1982 Graduates Compared

The 1991 Follow-up of Graduates Survey is the second time such a survey has been undertaken. The first follow-up survey occurred in 1987 and was a follow-up of 1982 graduates. In this section, the labour market outcomes of the 1986 graduates are compared to those of 1982 graduates. The economic climate of the time played an important role in the labour market success of the two graduate cohorts[3].

At the time of graduation, the 1982 and 1986 graduates faced very different economic conditions. In 1982, the Canadian economy was in a recession. By 1987, the Canadian economy had undergone several years of growth. In 1986, labour market conditions were quite positive. By 1991, the Canadian economy was again in the midst of a recession.

With the exception of the career/technical level, the percentage of 1982 graduates working full-time was highest five years after graduation. Over time, full-time employment continually improved for the 1982 university and trade/vocational graduates. At the career/technical level, there was a slight decrease in full-time employment between 1984 and 1987.

At all levels of graduation, the unemployment rate for 1982 graduates was at its lowest level five years after graduation. Between 1984 and 1987, unemployment rates for the 1982 graduates fell

Chart 2-7. Percentage of 1982 and 1986 graduates employed full-time at different points after graduation

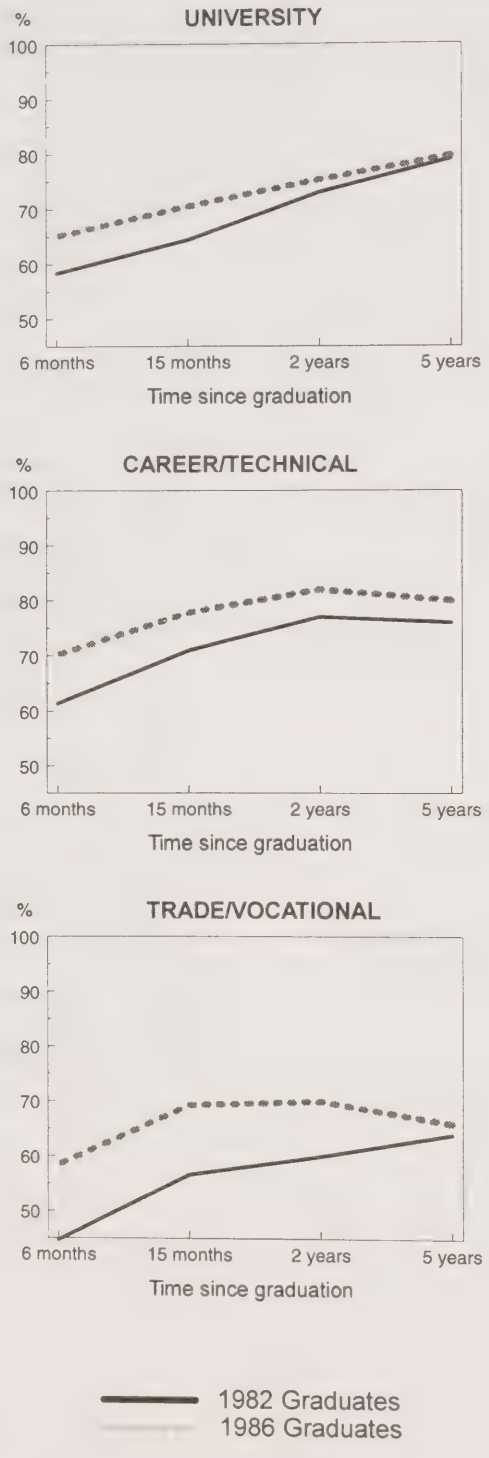
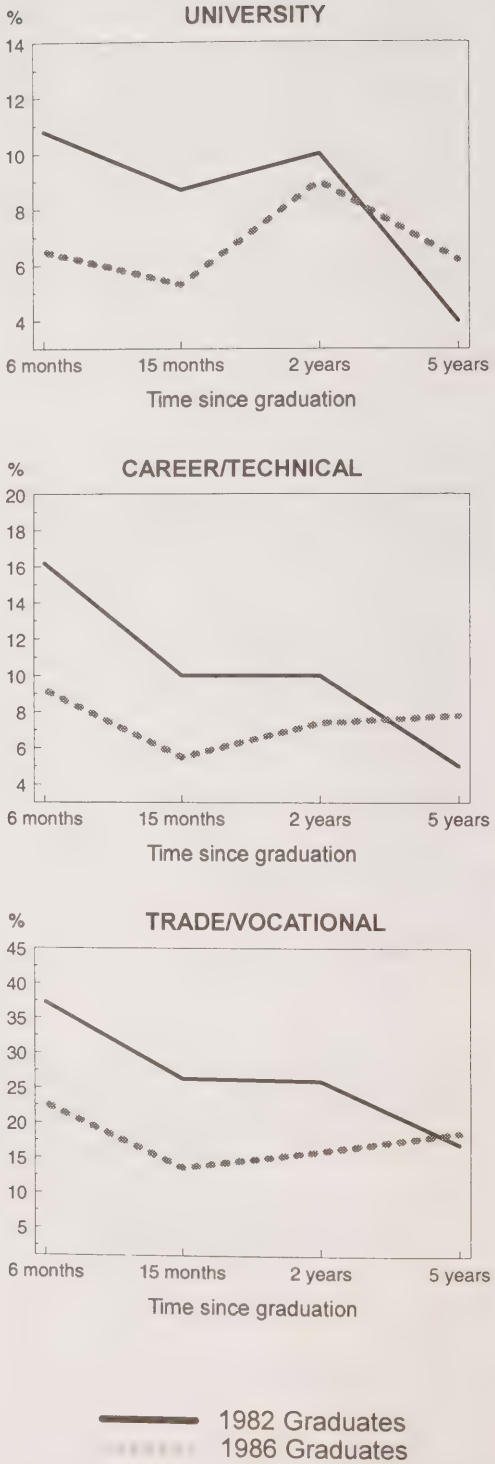


Chart 2-8. Unemployment rates of 1982 and 1986 graduates at different points after graduation



dramatically. With the growth in the Canadian economy, labour market conditions improved for the 1982 graduates (Charts 2-7 and 2-8).

By contrast, only at the university level was the percentage of 1986 graduates working full-time highest five years after graduation. Only the 1986 university graduates saw their unemployment rate drop between 1988 and 1991 as labour market conditions worsened.

In the first two years following graduation, the 1986 graduates fared better in the labour market than the 1982 graduates. Two years after graduation, the 1986 graduates were more likely be working full-time than were the 1982 graduates – particularly at the trade/vocational level. Generally, unemployment rates were lower for the 1986 graduates two years after graduation, again especially at the trade/vocational level.

Five years after graduation, however, very little difference remained in the percentage of 1982 and 1986 graduates working full-time. Unemployment rates were higher for the 1986 graduates than for the 1982 graduates. Any advantage held by the 1986 graduates because they entered the labour force in a period of economic growth disappeared by 1991.

Variation in Labour Market Experiences: May 1988 and March 1991

Men and Women

For most levels of education, the school-to-work transition favoured men over women. Between 1988 and 1991, the labour force participation rate increased for men but stayed the same for women at the bachelor's level. While full-time employment increased for men at the master's level, women saw a larger increase in part-time employment. At the career/technical level, the percentage of full-time workers dropped for women but stayed the same for men and the increase in the percentage of women out of the labour force was much higher than the increase for men (Chart 2-9). By contrast, full-time employment fell more for men than for women at the trade/vocational level and the unemployment rate for men climbed to 22% from 18% while remaining at 14% for women.

While the labour force activities of men and women changed in different directions between 1988 and 1991, what remained constant was the greater likelihood of male graduates, at all levels, to be employed full-time. Women had a much higher percentage of part-time workers in both years. In 1991, women at all levels were also more likely than men to be out of the labour force.

a) Unemployment Rates

In 1991, male career/technical and trade/vocational graduates had higher unemployment rates than their female counterparts, especially at the trade/vocational level (Chart 2-10). There was little difference in the unemployment rates of men and women at the university level. The difference in the unemployment rates of male and female trade/vocational graduates is partly explained by the fact that they graduated from different fields of study.

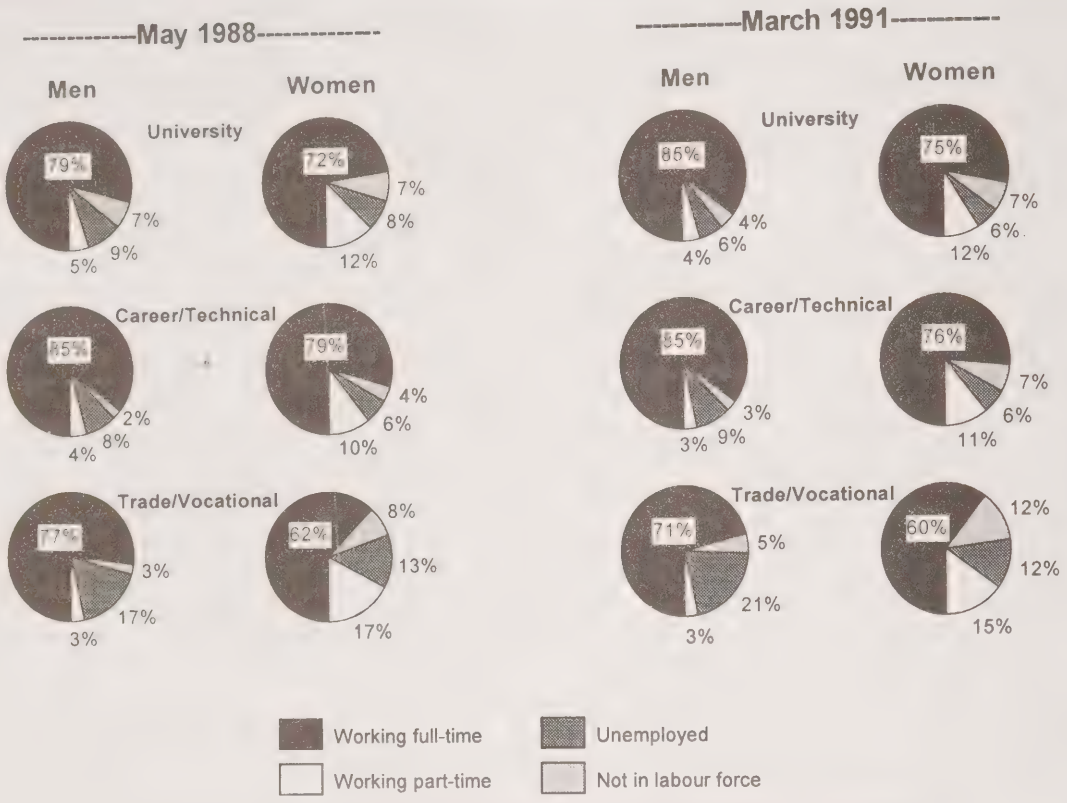
Over half of the women at the trade/vocational level studied business and commerce (particularly secretarial science) and another 18% studied health sciences. On the other hand, almost three-quarters of the men at this level graduated from engineering and applied sciences. This difference in field of study choice had an impact since in 1991, the unemployment rate of all trade/vocational graduates of engineering and applied science was 22%, up from 17% in 1988. By contrast, the unemployment rate for trade/vocational graduates of business and commerce and health sciences remained relatively constant over this period (about 15% and 5%, respectively).

b) Reasons for Working Part-time

The percentage of women working part-time was at least double and sometimes over three times that of men. Why did so many women work part-time and did their reasons differ from those of men?

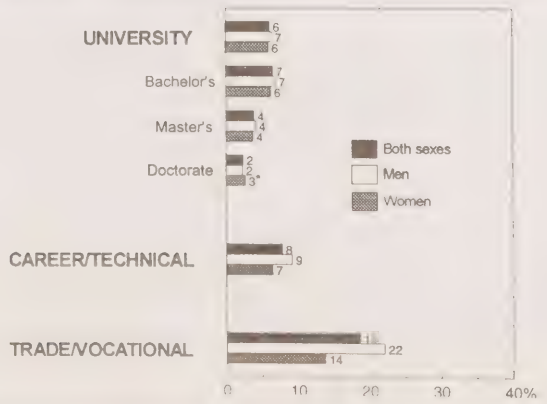
In 1988, many women worked part-time because they "could only find part-time work" or because of "personal or family responsibilities". At the bachelor's, master's and career/technical levels many

Chart 2-9. Labour force status of 1986 graduates in May 1988 and March 1991, by sex



Labour force status	Bachelor's				Master's				Doctorate			
	Men		Women		Men		Women		Men		Women	
	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991
	%											
Employed	84	89	85	87	86	92	86	90	94	97	90	96
Full-time	79	85	72	75	80	86	74	75	90	95	80	85
Part-time	5	4	13	12	6	6	12	15	4	2	9	10
Unemployed	10	7	8	6	6	4	6	4	4	2	6	3*
Not in labour force	7	4	7	7	8	4	8	6	2	1*	4	2**

Chart 2-10. Unemployment rates, March 1991, by sex



women said they worked part-time because they were "going to school". Men who worked part-time in 1988 tended to be either "going to school" or they "could only find part-time work". Men rarely cited "personal or family responsibilities" as a reason for working part-time. About the same percentage of men and women worked part-time because they "could only find part-time work" in 1988 (Chart 2-11).

In 1991, the percentage of female graduates working part-time because they were "going to school" remained high only at the master's level. By contrast, "going to school" was the reason most frequently given by male bachelor's, master's and career/technical graduates working part-time.

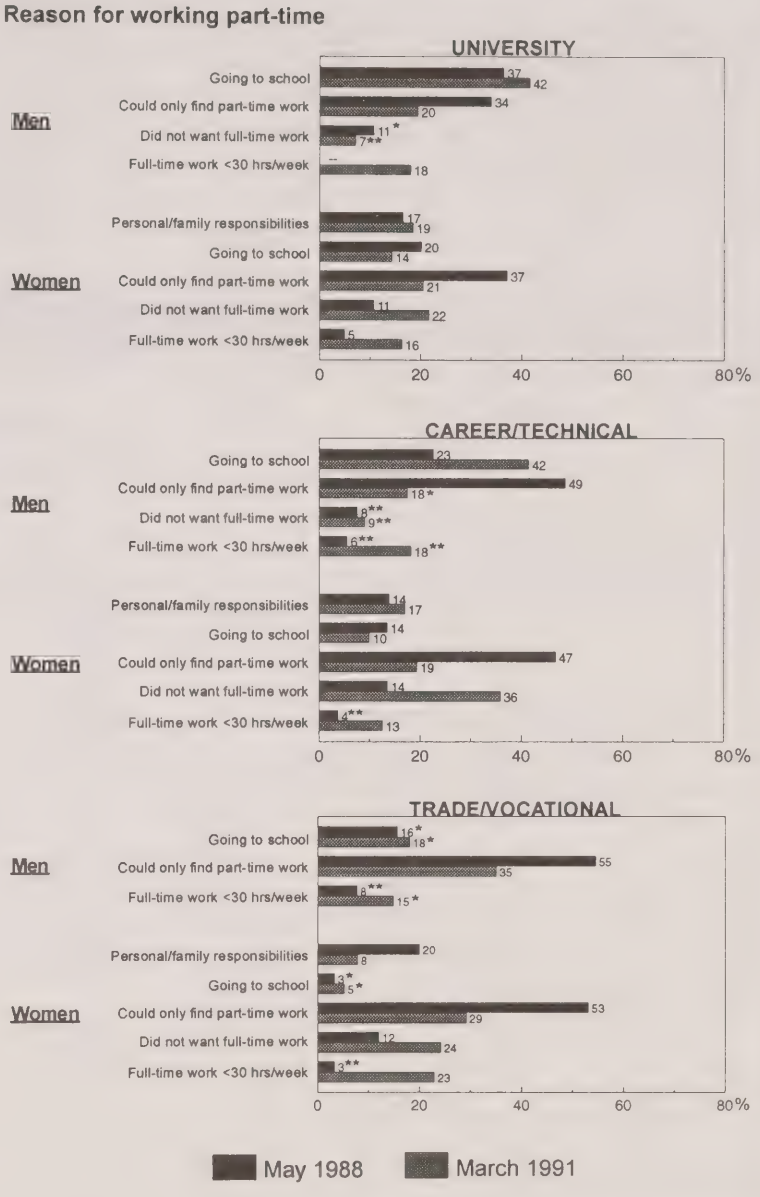
"Personal or family responsibilities" remained among the most common reasons for women to work part-time and was still rarely cited as a reason by men in 1991. In 1991, most women working part-time had dependent children (over 90% at all levels of education).

For both men and women, "could only find part-time work" was still among the most often cited reasons for part-time work, but this reason was given much less frequently than in 1988.

Many of the female graduates working part-time in 1991 said they "did not want full-time work". This reason was cited much more frequently in 1991 than in 1988. In 1991, men often said that full-time work was less than 30 hours as did women at the bachelor's, career/technical and trade/vocational levels.

When their reasons for working part-time are considered, it appears that most of the male graduates who worked part-time in 1991 were "temporary" part-time workers and would expect to become full-time workers given the opportunity. Over half of these men were working part-time either because they were "going to school" or they "could only find part-time work". For many women, working part-time appeared to be a more long-term arrangement as many "did not

Chart 2-11. Reasons for working part-time in May 1988 and March 1991, by sex



Reason for working part-time	Bachelor's				Master's				Doctorate			
	Men		Women		Men		Women		Men		Women	
	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991
	%											
Personal or family responsibilities	--	--	16	19	--	--	22	15	--	-	44	35
Going to school	36	42	21	13	41	40	17	23	21	13**	3**	--
Could only find part-time work	34	21	38	22	34	13*	34	15	28*	22**	21*	14*
Did not want full-time work	13*	7**	11	21	--	8*	12	26	-	39*	--	21*
Full-time work is <30 hours/week	--	17*	5*	17	5**	25	4**	13	--	--	--	12*

want full-time work" and many were taking care of "personal or family responsibilities".

c) Reasons for Being Out of the Labour Force

With the exception of doctoral graduates, the percentage of women out of the labour force in 1991 was higher than the percentage of men. A negligible percentage of both men and women were out of the labour force at the doctoral level.

There were differences in the reasons men and women gave for not participating in the labour force. The majority of male bachelor's, master's and career/technical graduates said they were out of the labour force in 1991 because they were "going to school". Many of the male trade/vocational graduates were also "going to school" but 24% of these graduates had an illness or disability that kept them from participating in the labour force.

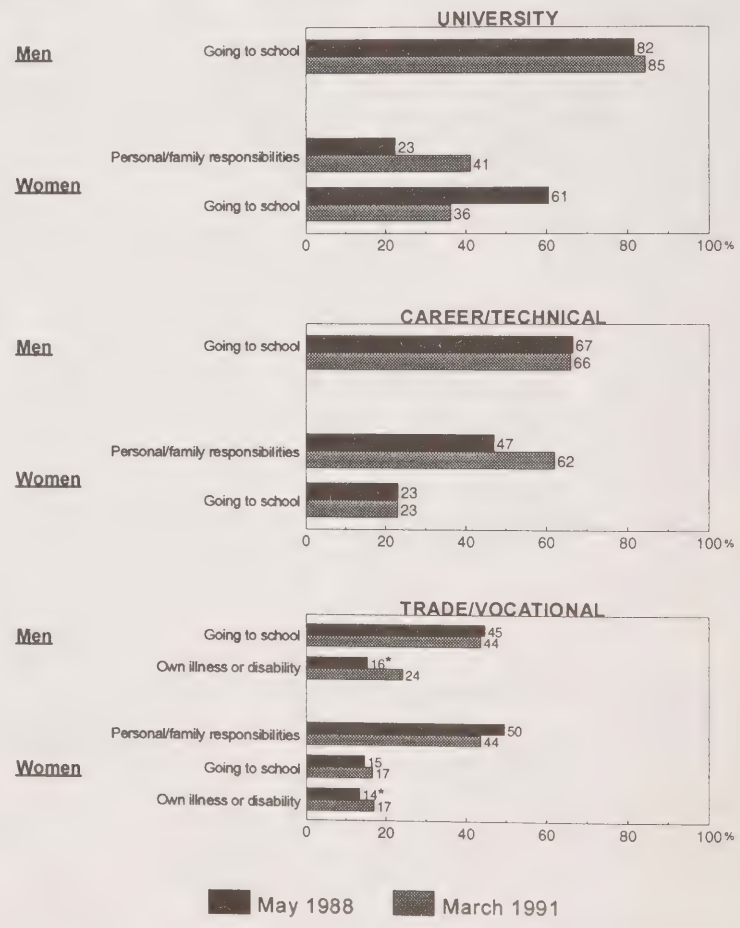
While "going to school" was also frequently cited by women as the reason for being out of the labour force in 1991, at all levels, men were much more likely than women to give this reason. On the other hand, while "personal or family responsibilities" was the main reason women said they did not participate in the labour force in 1991, very few men gave this response. As well, many female trade/vocational graduates said "own illness or disability" when asked why they were not labour force participants (Chart 2-12).

About the same percentage of male and female bachelor's and master's graduates were out of the labour force in 1988 but, by 1991, the situation had changed. While the percentage of women out of the labour force stayed the same it decreased for men. What happened? Though fewer men and women stayed out of the labour force to go to school, the number of women out of the labour force due to personal or family responsibilities increased.

The data suggest that the family life cycle plays an important role in women's transition to the labour market. At all levels, over 85% of female graduates who were out of the labour force due to "personal or family responsibilities" had dependent children.

In addition to gender, other demographic characteristics that affect graduates' labour market activities

Chart 2-12. Reasons for not being in labour force in May 1988 and March 1991



Reason for not in labour force	Bachelor's				Master's				Doctorate			
	Men		Women		Men		Women		Men		Women	
	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991	May 1988	March 1991
	%											
Personal or family responsibilities	--	--	23	42	--	-	18	34	-	-	41*	44**
Going to school	80	85	60	36	93	86	69	45	73	--	44*	-

include marriage and children, being of aboriginal or visible minority descent, or having a disability.

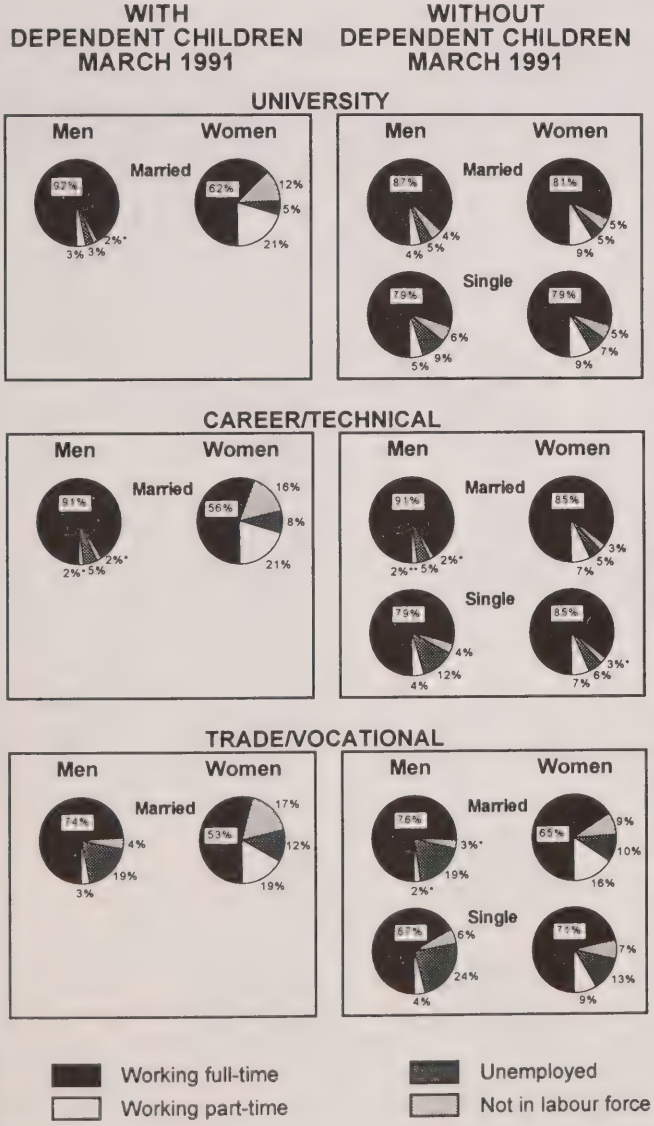
d) Marital Status and Dependent Children

By 1991, over half of the 1986 graduates were married or living common-law. Most of the graduates who had dependent children in 1991 were married or living common-law. Since very few single graduates had children, an analysis of their labour force activities is not included here.[4]

For men without children, being married rather than single meant a greater likelihood of being employed full-time. Only at the university level did the presence of children appear to affect the labour force activities of married men. At this level, married men with children were more likely to work full-time and more likely to participate in the labour force than were married men without children (Chart 2-13).

For women, the trend was different. The presence of children had a dramatic impact on their labour

Chart 2-13. Labour force status of 1986 graduates with and without dependent children in May 1988 and March 1991, by sex and marital status



1988 Labour Force Status	With dependent children		Without dependent children			
	Men	Women	Men		Women	
	Married	Married	Married	Single	Married	Single
	%					
University						
Employed	94	85	89	80	87	83
Full-time	91	64	85	74	77	72
Part-time	3*	20	4	6	11	11
Unemployed	5	6	6	11	6	10
Not in labour force	2*	10	5	9	7	7
Career/technical						
Employed	94	82	90	89	92	92
Full-time	90	61	88	84	81	84
Part-time	4**	20	2**	5	11	8
Unemployed	4*	7	8	9	5	6
Not in labour force	2**	11	2**	2	3**	2
Trade/vocational						
Employed	80	76	86	80	82	85
Full-time	76	52	83	76	62	72
Part-time	3*	23	3*	4	20	12
Unemployed	17	13	13	18	11	12
Not in labour force	3*	11	1**	2	8	3*

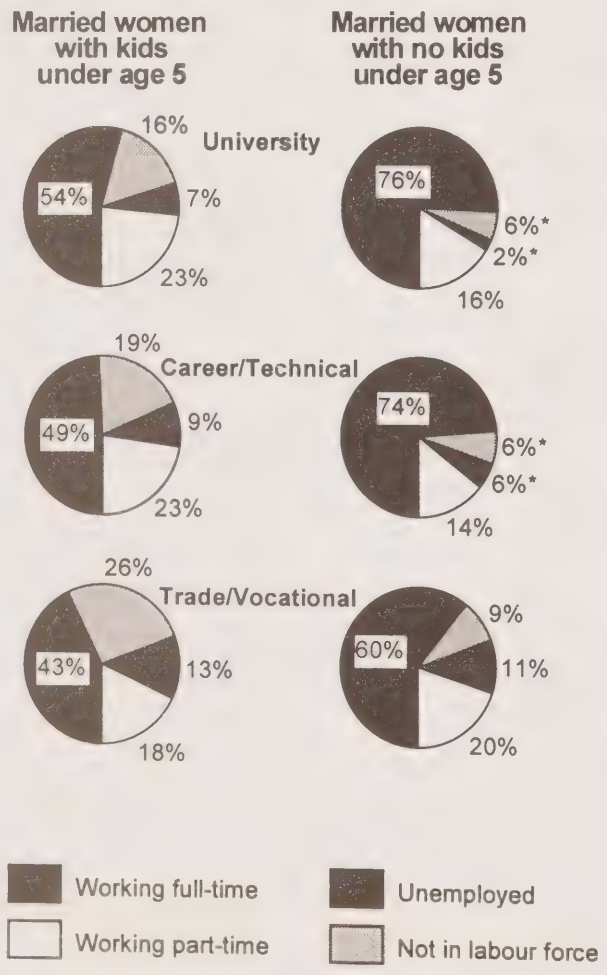
force activities. Married women with children were much less likely to be employed full-time, were generally more likely to be employed part-time and were much more likely to be out of the labour force than were married women without children. Interestingly, when children were not a factor, there was very little difference in the labour force activities of married and single women, particularly at the university and career/technical levels.

The age of dependent children matters when it comes to women's labour force activities. At all levels, women with children under 5 were much less likely to be working full-time and were much more likely to be out of the labour force than were women with children over 5. At the university and career/technical levels, women with young children were also much more likely to be employed part-time than were mothers of older children (Chart 2-14).

We have already seen that overall, men were more likely to be employed full-time while women were more likely to be working part-time. Since having children had a much greater effect on the labour market activities of married women than married men, do marriage and children help explain this overall pattern?

Yes, when children were a factor, the labour force activities of married men and women were very different. When those with children were excluded, these differences were much less apparent, although married men continued to have a higher percentage of full-time workers (Chart 2-13).

Chart 2-14. Labour force status in March 1991 of women with dependent children who are married or living common law by age of children



When men worked in 1991, the overwhelming majority worked full-time. When women worked, they were more likely to be employed part-time, especially if they were married and had children. These employment patterns were also seen in 1988. The school-to-work transition is just one of many transitions in a lifetime. The transition to marriage and parenthood is another. Given the age of many of the post-secondary graduates, these two transitions are likely to happen at about the same time. The data suggest that understanding the employment patterns of postsecondary graduates also requires an understanding of family life cycles.

Aboriginal Graduates[5]

Two percent of university, 3% of career/technical and 6% of trade/vocational graduates identified themselves as aboriginal peoples. (*see Text Box 3*)

TEXT BOX 3 - Employment Equity Groups (Definitions)

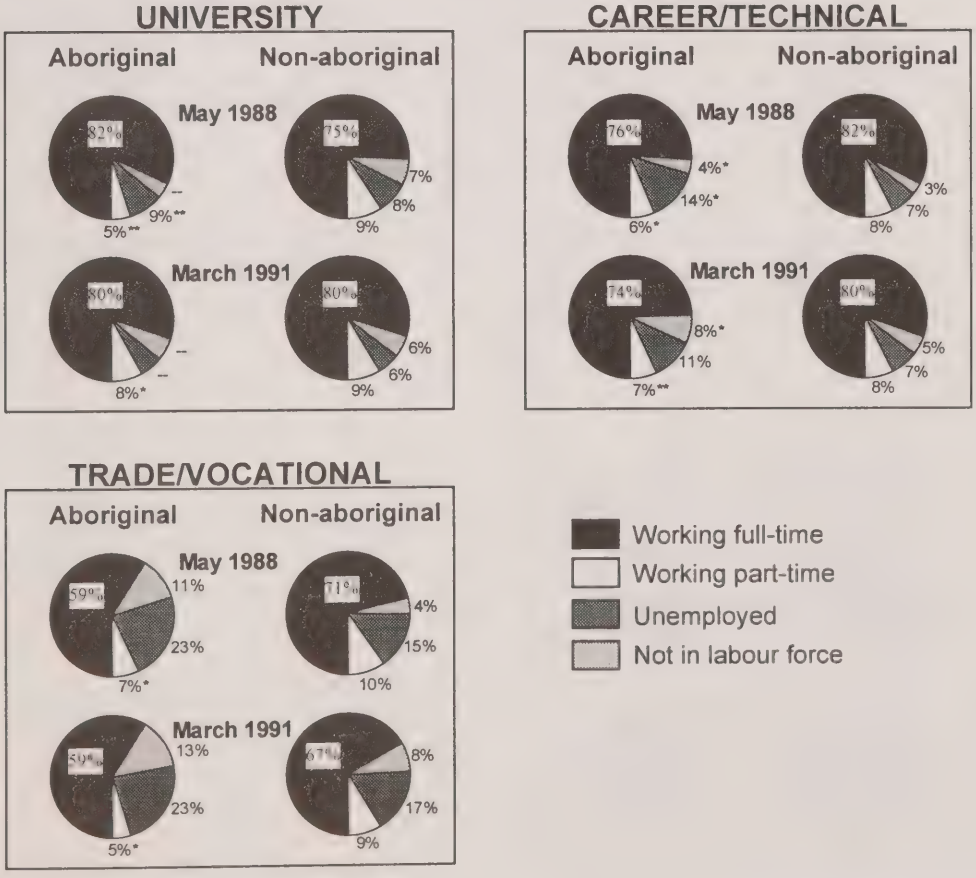
Aboriginal graduates: those who said they considered themselves to be Inuit, North American Indian or Metis in the 1988 NGS and/or who responded in the 1991 FOG that their parents or grandparents descended from North American Indian, Metis or Inuit. The data presented here will differ from The Class of 86.

Visible minority graduates: those who responded in the 1991 FOG that their parents or grandparents descended from Chinese, Japanese, Korean, Filipino, East Indian, Black, Arab, West Asian, South East Asian, North African, and Latin American groups.

Disabled graduates: those who said that they were limited in the kind or amount of activity they could do because of a long-term physical condition, mental condition or health problem at home, at school, at work or in other activities such as transportation or leisure-time activities. The 1988 disability status was gathered in the 1988 NGS while the 1991 disability status was gathered in the 1991 FOG. Over time an individual's disability status may change; disabled graduates in 1988 and 1991 are not necessarily the same individuals.

In 1988, aboriginal graduates at the career/technical and trade/vocational levels were less likely to be employed full-time and had higher unemployment rates than non-aboriginal graduates. The story was much the same in 1991. The difference in unemployment rates was reduced over time, particularly at the career/technical level where the reduction was not due to gains in employment by aboriginal

Chart 2-15. Labour force status of 1986 graduates by aboriginal and non-aboriginal status, May 1988 and March 1991



peoples but to changes in labour force participation by both groups (Chart 2-15).

At the university level, there was little difference in the labour force activities of aboriginal and non-aboriginal graduates in 1991.

Visible Minorities

In 1991, 8% of university, 6% of career/technical, and 7% of trade/vocational graduates identified themselves as visible minorities.

At the university level in 1988, visible minority graduates were less likely to be employed overall and more likely to be out of the labour force than other graduates. By 1991, very little difference remained (Chart 2-16).

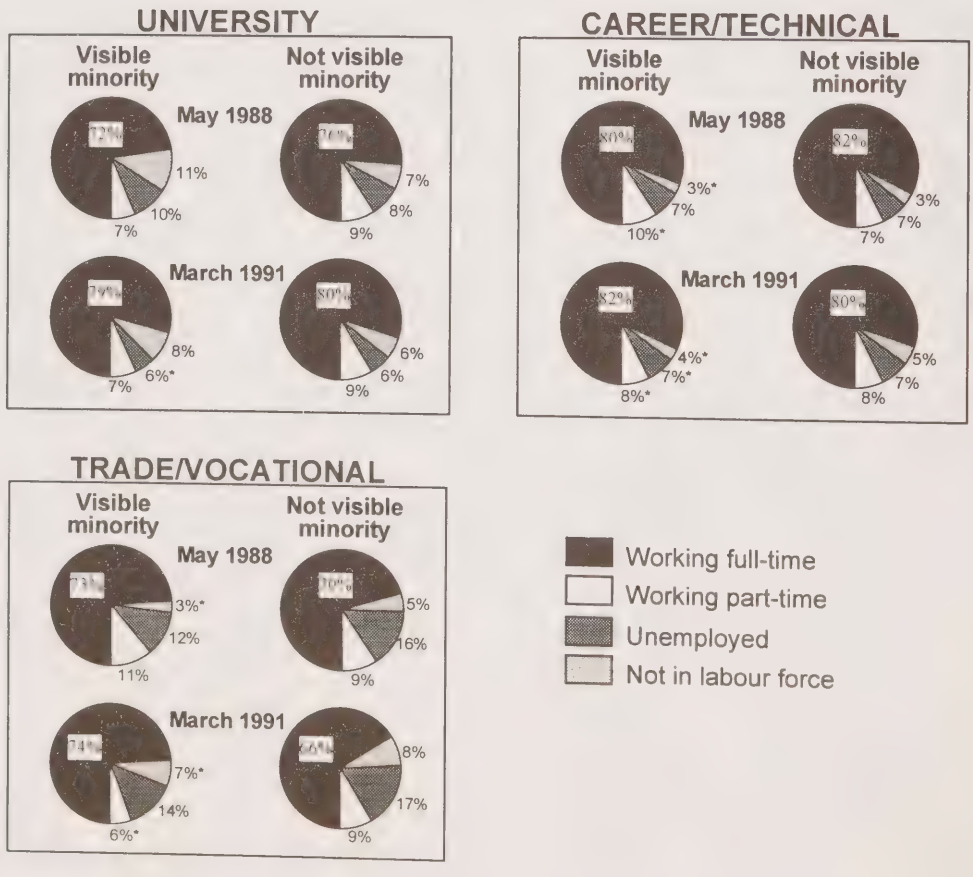
In both 1988 and 1991, there was little difference in the labour market activities of visible minority and other graduates at the career/technical level.

For trade/vocational graduates, members of a visible minority were more likely to be employed full-time than were other graduates.

Graduates with Disabilities

In 1991, 3% of university, 3% of career/technical and 7% of trade/vocational graduates identified themselves as being limited in their activities (persons with disabilities).

Chart 2-16. Labour force status of 1986 graduates who were and were not members of visible minorities, May 1988 and March 1991



In May 1988, graduates with disabilities did not fare as well in the labour market as those without disabilities. The same story was true in 1991 when graduates with disabilities at all levels, were more likely to be out of the labour force and less likely to be employed full-time than were graduates without disabilities. At the career/technical level, in 1991, the unemployment rate for graduates with disabilities was nearly double that of those without (Chart 2-17).

In both 1988 and 1991, the difference in the labour market activities of graduates with and without disabilities was particularly apparent at the trade/vocational level. The percentage of trade/vocational graduates with disabilities who were out of the labour force was almost four times that of graduates without disabilities.

As might be expected, many of the graduates with disabilities who were out of the labour force in 1991 said "own illness or disability" was their reason for being so - 75% of trade/vocational, 48%* of university and 36%* of career/technical graduates.

Co-op Graduates

About 3% of university (primarily at the bachelor's level) and 3% of career/technical graduates studied as co-op students in 1986; that is, their programs included study terms and work terms. Most of the co-op graduates were concentrated in a few fields of study. At the university level, these fields were: commerce, management and administration; engineering and applied science; and mathematics and physical sciences. At the career/technical level the

Chart 2-17. Labour force status of 1986 graduates with or without disabilities, May 1988 and March 1991

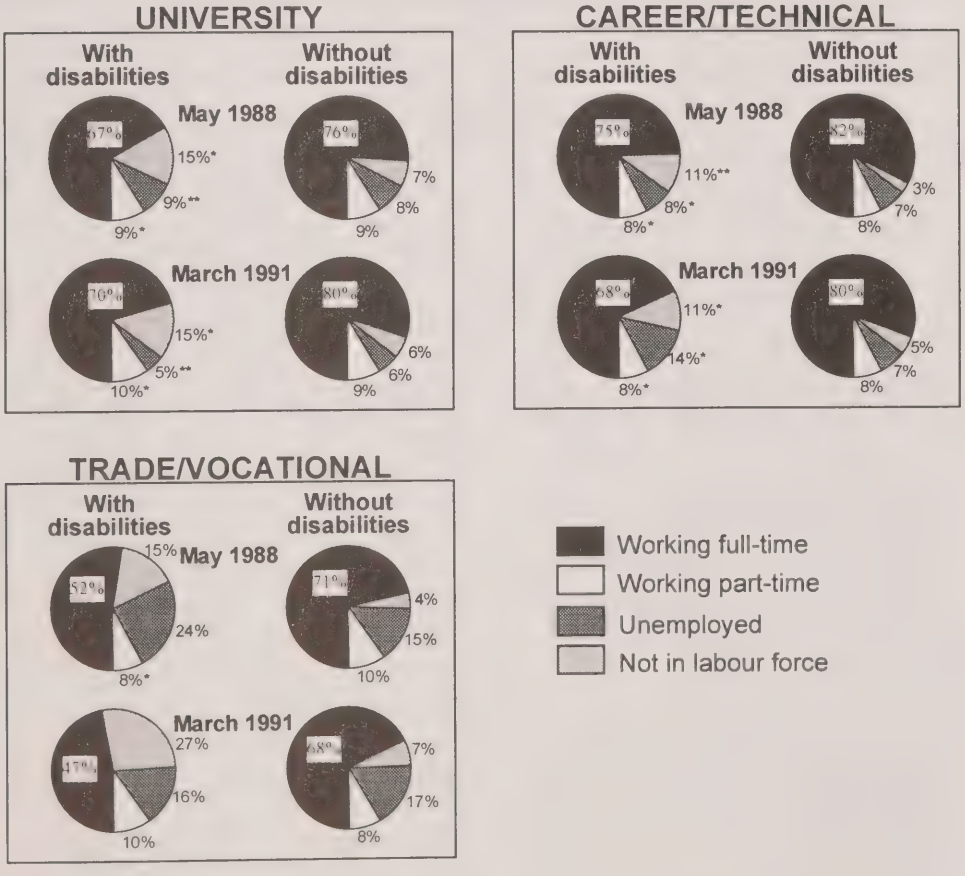
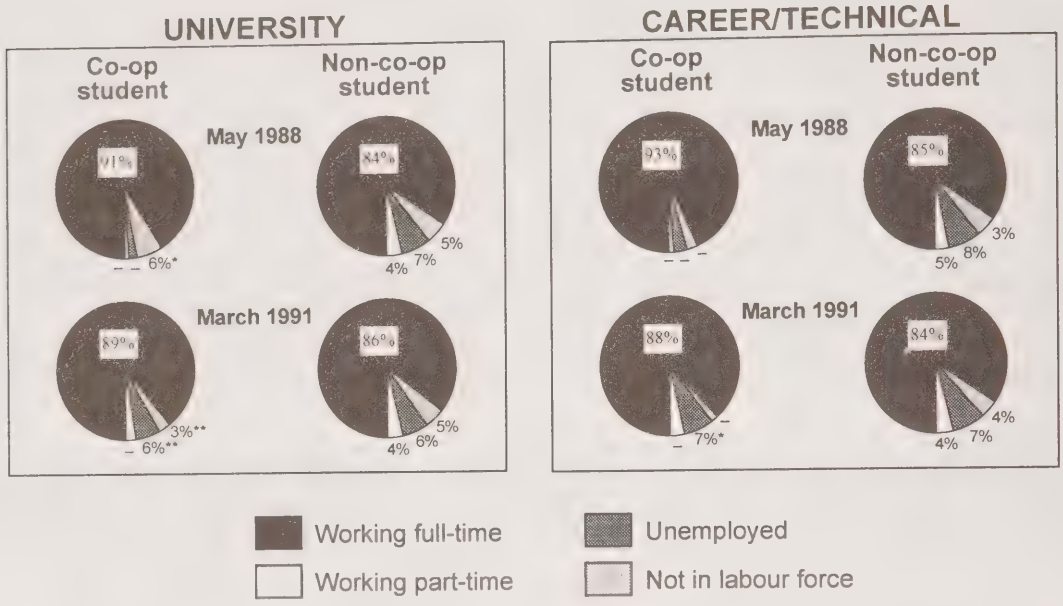


Chart 2-18. Labour force status of 1986 graduates of co-op and non-co-op programs in selected fields of study, May 1988 and March 1991



fields were: business and commerce; and engineering and applied science. Since graduates of these fields of study have a greater tendancy to be employed full-time than do graduates of other fields, the analysis of co-op graduates' labour market activities focused only on graduates of these particular fields of study.

In 1988, co-op students held an advantage in the labour market. Co-op graduates were more likely to be employed full-time and had much lower unemployment rates than did non-co-op graduates (Chart 2-18). At the university level, the difference in full-time employment was particularly large among graduates of mathematics and physical science fields (92% of co-op and 77% of non-co-op graduates were employed full-time).

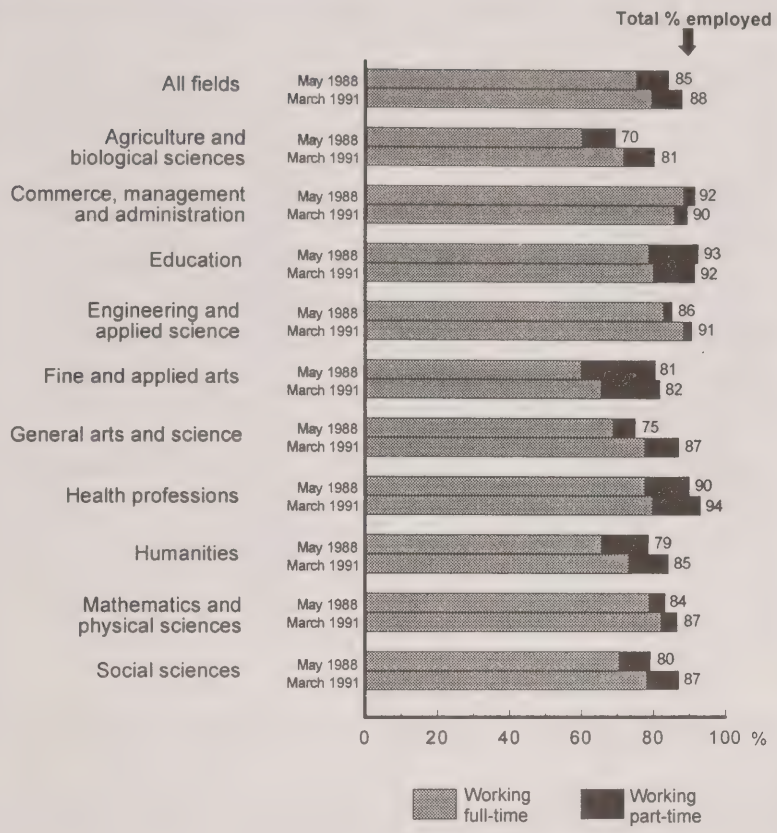
By 1991, these differences between co-op and non-co-op graduates were substantially reduced. University co-op graduates of mathematics and physical sciences were still much more likely to be employed full-time than were non-co-op graduates, although the gap did decrease over time (90% of co-op and 81% of non-co-op graduates were employed full-time) . It would appear, then, that advantages recognized by co-op graduates may dissipate over time.

Major Field of Study

Generally, the likelihood of being employed full-time in 1991 was strong if you were a graduate of an engineering and applied science program or of a business, commerce, management or administration program (Charts 2-19 and 2-20). By contrast, at the university level, graduates of agriculture and biological sciences, fine and applied arts, and humanities were the least likely to be employed full-time in 1991. At the career/technical and trade/vocational levels, graduates of natural sciences and primary industry fields of study were the least likely to be working full-time in 1991.

Graduates of health programs did not necessarily have the highest levels of full-time employment, because of their high rates of part-time

Chart 2-19. Employment status of university graduates by major field of study, May 1988 and March 1991



		Total University		Bachelor's		Master's		Doctorate	
		% employed							
		Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
All fields	May 1988	75	9	75	9	77	8	87	6
	March 1991	80	9	79	8	81	10	91	5
Agriculture & biological sciences	May 1988	60	9	60	9	56	11	91	--
	March 1991	72	9	72	9	68	10	92	4*
Commerce, management and administration	May 1988	88	3*	87	4*	94	2**	92	-
	March 1991	86	4*	85	4*	93	2*	91	-
Education	May 1988	79	14	77	15	87	7	91	7*
	March 1991	80	12	79	12	86	10	97	-
Engineering and applied science	May 1988	83	2*	83	2*	82	3*	87	4*
	March 1991	89	2*	88	2*	89	3*	96	3**
Fine and applied arts	May 1988	60	21	60	20	64	25	65	--
	March 1991	66	16	66	16	65	20*	76	--
General arts and science	May 1988	69	6*	69	6*	64	7*	..	-
	March 1991	78	10*	78	9*	70	16	..	-
Health professions	May 1988	78	13	78	13	77	10	91	3**
	March 1991	80	13	80	14	81	11	88	8
Humanities	May 1988	66	13	66	13	61	16	77	9*
	March 1991	73	11	74	10	69	17	90	6*
Mathematics and physical sciences	May 1988	79	4	80	4	62	9	94	3*
	March 1991	82	5	82	4*	78	7	91	3*
Social sciences	May 1988	71	9	71	8	70	12	82	10
	March 1991	78	9	78	8	76	15	90	7

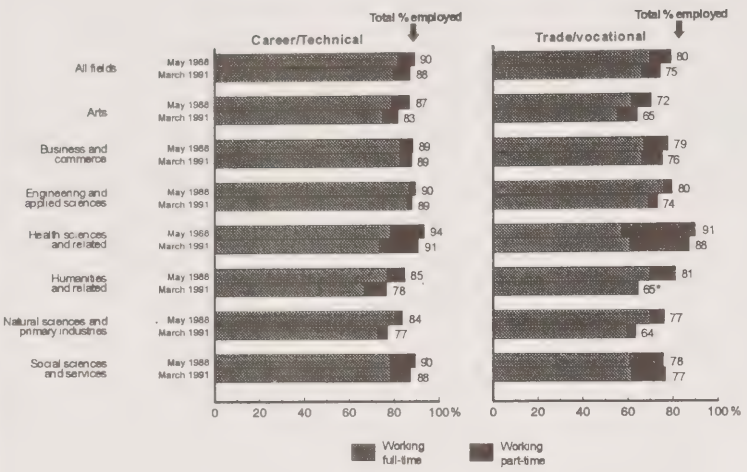
employment, but these programs did tend to have low unemployment rates. The high level of part-time employment seen among health program graduates was due to a high concentration of women in this field. At the university and career/technical levels in particular, the percentage of full-time workers was much higher than average for men who graduated from health sciences. Over 90% of men who graduated from this field at these levels worked full-time while for women the percentages of full-time workers were 76% and 70%, respectively.

Similarly, university graduates of education programs had high overall levels of employment and lower than average unemployment rates. A high percentage of the women who graduated from education programs were employed part-time whereas men were typically employed full-time.

At the university level, women who graduated from mathematics and physical sciences had a relatively high percentage of full-time workers, 83%, compared to women graduating from many other fields of study. Contrary to the overall trend, women at the trade/vocational level who graduated from engineering and applied sciences did not have a high incidence of full-time employment.

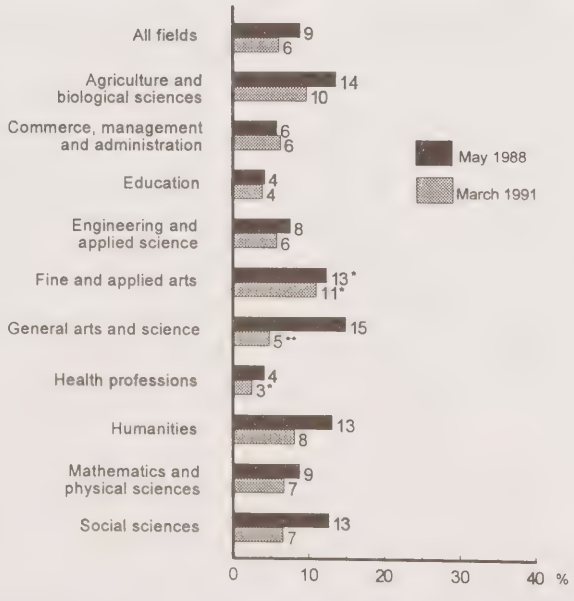
Between 1988 and 1991, overall full-time employment increased for university graduates while dropping for career/technical and trade/vocational graduates. The overall unemployment rate fell at the university level, increased at the trade/vocational level and there was not much change at the career/technical level. Generally, changes

Chart 2-20. Employment status of career/technical and trade/vocational graduates by major field of study, May 1988 and March 1991



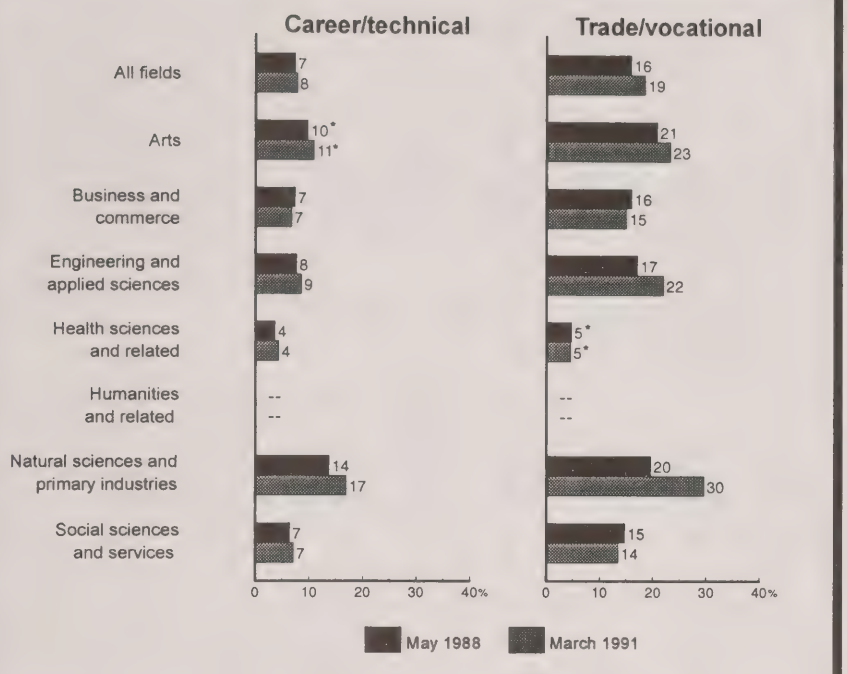
		Career\ Technical		Trade/ vocational	
		% employed			
		Full-time	Part-time	Full-time	Part-time
All fields	May 1988	82	8	70	10
	March 1991	80	8	66	9
Arts	May 1988	79	8*	62	9*
	March 1991	75	7*	56	9*
Business and commerce	May 1988	83	6	67	11
	March 1991	83	5	66	9
Engineering and applied sciences	May 1988	87	3	76	4
	March 1991	86	3	70	4
Health sciences and related	May 1988	78	15	57	33
	March 1991	73	18	61	27
Humanities and related	May 1988	77	--	70*	--
	March 1991	67	--	65*	-
Natural sciences and primary industries	May 1988	81	3	70	6*
	March 1991	73	5	60	4*
Social sciences and services	May 1988	78	12	61	15
	March 1991	79	9	62	15

Chart 2-21. Unemployment rates of 1986 university graduates by major field of study, May 1988 and March 1991



		Bachelor's	Master's	Doctorate
		Unemployment rate (%)		
All fields	May 1988	9	7	5
	March 1991	7	4	2
Agriculture & biological sciences	May 1988	14	11	--
	March 1991	10	8	--
Commerce, management and administration	May 1988	7	3*	--
	March 1991	7	4*	--
Education	May 1988	5	3	--
	March 1991	5	1*	2**
Engineering and applied science	May 1988	8	4*	4*
	March 1991	6	6	--
Fine and applied arts	May 1988	13*	9**	22**
	March 1991	11*	12**	-
General arts and science	May 1988	15	14*	-
	March 1991	5**	--	-
Health professions	May 1988	4	4*	1**
	March 1991	3*	2**	--
Humanities	May 1988	13	13	12
	March 1991	9	5	--
Mathematics and physical sciences	May 1988	9	8	2**
	March 1991	7	6	4*
Social sciences	May 1988	13	11	5
	March 1991	7	4	2**

Chart 2-22. Unemployment rates of 1986 career/technical and trade/vocational graduates by major field of study, May 1988 and March 1991



within the major fields of study reflected these trends. There were exceptions, however, and the magnitude of change varied considerably by field of study (Charts 2-19 to 2-22).

At the university level, major fields of study with relatively low percentages of full-time workers in 1988 had "caught up" by 1991. The percentage of full-time workers increased dramatically for these graduates in the humanities and social sciences. University graduates of humanities (especially at the master's and doctoral levels) and of social science fields were much less likely to be unemployed in 1991 than they were in 1988 (Chart 2-21). In addition, full-time employment rose sharply for bachelor's and master's graduates of agricultural and biological sciences, and master's graduates of mathematics and physical sciences as many of these graduates who were out of the labour force in 1988 had entered by 1991. There was also a large increase in full-time employment for all university graduates of engineering and applied sciences as more of them entered the labour force at all levels and unemployment fell significantly at the doctoral level.

At both the career/technical and trade/vocational levels, graduates of natural sciences and primary industry fields experienced a significant drop in full-time employment as many of them left the labour force and, at the trade/vocational level, the unemployment rate for these graduates rose to 30% from 20% in 1988 (Chart 2-22). Going to school and personal or family responsibilities were the reasons these graduates most frequently cited for being out of the labour force in 1991. Women more often gave personal or family responsibilities as their reason while men more often said they were going to school.

Full-time employment also fell for career/technical graduates of health sciences as more of these graduates worked part-time and many also left the labour force. Most of these graduates were women and over half of the women who were out of the labour force in 1991 cited personal or family responsibilities as the reason.

For engineering and applied science graduates at the trade/vocational level, there was a large drop in full-time employment, a rise in unemployment, and an increase in graduates out of the labour force.

Five years after graduation, engineering and applied science and business, commerce, administration graduates were the most likely to have full-time jobs. At the university level, the gap in full-time employment between these and other fields of study decreased over time as many of the fields with a low incidence of full-time employment in 1988 saw dramatic increases by 1991. The gap in full-time employment between trade/vocational graduates of engineering and applied sciences and other fields was also reduced as fewer of the engineering and applied science graduates were employed full-time in 1991. The opposite was the case at the career/technical level where the gap widened. Full-time employment remained

unchanged for business and commerce and engineering and applied science graduates at the career/technical level but fell for graduates of other fields.

Province (of Interview)

Labour market conditions vary across the country due, in part, to differing regional, industrial and occupational structures and the differing impacts of government policies. For example, according to Statistics Canada's Labour Force Survey, unemployment rates for all persons aged 15 and over were higher in the eastern provinces than in the western provinces in both May 1988 and March 1991. Between 1988 and 1991, the unemployment rate in Ontario jumped 4.6 percentage points. While Ontario had the lowest unemployment rate of all the provinces in 1988, the rate was lower in several western provinces in 1991. Provinces in the west also did not experience the large unemployment increases that were felt elsewhere between 1988 and 1991 (Statistics Canada's Labour Force Survey).

The success graduates had in finding employment in 1988 and 1991 varied depending on their province of residence and their level of education. Changes in their labour force activities between 1988 and 1991 also varied by province of residence. In almost every province, the labour market position of university graduates improved between 1988 and 1991. With the onset of the recession, career/technical and trade/vocational graduates living in Ontario saw their labour market position deteriorate dramatically.

a) Labour Market Success in the Provinces, 1991

In 1991, the percentage of bachelor's graduates employed full-time was high in Ontario and New Brunswick and at the master's level, full-time employment was high in Newfoundland and New Brunswick. Doctoral graduates were quite successful at finding full-time work across the country but Ontario was the only province where the percentage of doctoral graduates working full-time was below 90%.

Career/technical graduates living in Ontario were more likely to be employed full-time than were graduates living in most other provinces. At the trade/vocational level, provinces west of Ontario tended to have the highest levels of full-time employment.

In 1991, the unemployment rate at the overall university and career/technical levels was much higher in Prince Edward Island than in many other provinces. The unemployment rate for trade/vocational graduates was highest in Newfoundland.

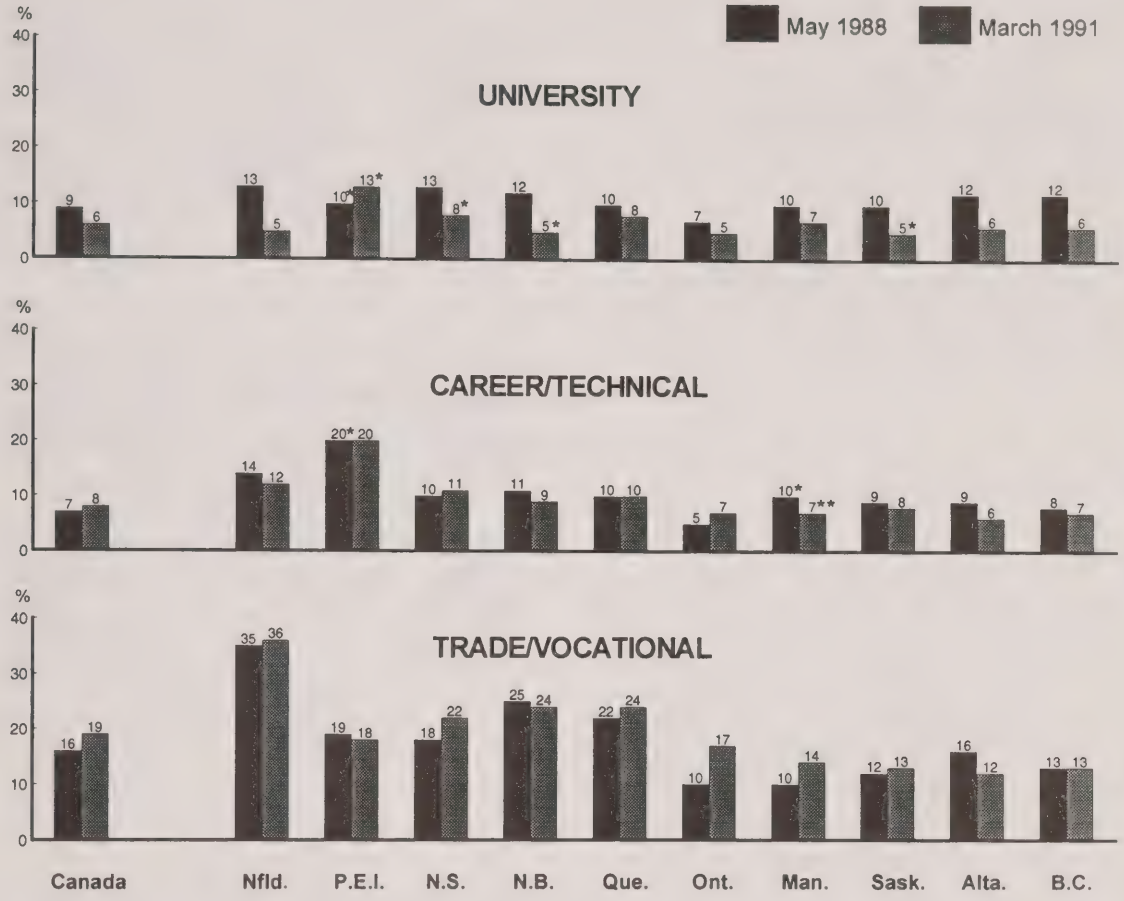
b) Changes in Labour Market Success in the Provinces, 1988 to 1991

Nationally, the 1986 university graduates experienced an increase in full-time employment and a decrease in their unemployment rate between 1988 and 1991. Full-time employment increased in most of the provinces. The size of the increase varied, however, and there were exceptions such as Prince Edward Island for bachelor's and master's graduates and New Brunswick for doctoral graduates. With the exception of Prince Edward Island, the unemployment rate of university graduates decreased in the provinces.

At the bachelor's level, full-time employment increased dramatically in Newfoundland, New Brunswick, Alberta and British Columbia. Unemployment rates in these provinces also fell substantially at this level (Chart 2-23). Full-time employment for master's graduates living in British Columbia increased as the unemployment rate fell significantly. At the doctoral level, several provinces saw large increases in full-time employment: Nova Scotia, Manitoba and Alberta.

At the national level, full-time employment dropped for the 1986 career/technical and trade/vocational graduates between 1988 and 1991. The magnitude of the decrease in full-time employment varied greatly among the provinces and there were some exceptions: Newfoundland and British Columbia at the career/technical level and New Brunswick, Alberta and British Columbia at the trade/vocational level. It is not surprising that western provinces were an exception to the overall trend as unemployment rates did not increase as

Chart 2-23. Unemployment rates of 1986 graduates in May 1988 and March 1991, by province



		Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
		Unemployment rate (%)										
Bachelor's	May 1988	9	14	10*	14	13	10	7	11	10	12	12
	March 1991	7	5	13*	8*	5*	9	5	7	5*	6	6*
Master's	May 1988	7	5	--	7*	5*	8	5	7	9	8	10
	March 1991	4	2*	--	5*	3*	5	4	4*	3*	4*	3*
Doctorate	May 1988	5	--	-	-	-	5*	4	-	6	9*	6*
	March 1991	2	--	-	-	-	1**	4	-	-	--	--

much in the western provinces as elsewhere in Canada.

At both the career/technical and trade/vocational levels, unemployment rates rose dramatically in Ontario and full-time employment fell. In fact, Ontario was the only province where there was a significant increase in the unemployment rate of career/technical graduates. This was consistent with changing labour market conditions in Ontario as a whole. Ontario was hit hard by the recession of the early 1990's.

Statistics Canada's Labour Force Survey data show that Ontario's overall unemployment rate almost doubled between 1988 and 1991. Because of the concentration of manufacturing industries in this province, labour market prospects were quite uncertain in 1991.[6] Manufacturing, a key employment industry for the 1986 trade/vocational graduates, was one of the industries hardest hit by the early 1990's recession.[7]

Graduates at the lower levels of education were more vulnerable to changes in labour market conditions as university graduates living in Ontario continued to see improvement in their labour force position.

Graduates in the Labour Market

Getting established in the labour market takes time and is affected by factors including level of education, the family life cycle, and field of study. In the long-term, full-time employment increased as many graduates continued their education and many worked part-time in the period immediately following graduation. In the short-term, however, changing economic conditions affected the school-to-work transition of the 1986 graduates. Graduates at the lower levels of education were especially vulnerable to changing conditions in Ontario where the recession of the early 1990's hit hard. University graduates living in this province, however, saw an improvement in their labour market position.

Several indicators point to the benefits of higher levels of education. Five years after graduating, the percentage of full-time workers was highest at the doctoral level and lowest at the trade/vocational level. Only university graduates saw increases in full-time employment and a drop in their unemployment rate between 1988 and 1991. Furthermore, the higher the level of education, the lower the unemployment rate in 1991.

Engineering and applied science and business, commerce, administration graduates were the most likely to have full-time jobs five years after graduating. Men were more likely than women to be working full-time, especially when children were a factor, as many women were out of the labour force and many were working part-time.

Thus far, changes in overall employment, unemployment and labour force participation have been the focus of analysis. This overview of changes in labour force status does not capture the full extent to which change occurred in the labour force activities of 1986 graduates. Their labour force activities were more dynamic than may have appeared.

II. To what extent did the 1986 graduates change their labour force activities between May 1988 and March 1991?

Graduates made considerable changes in their labour force activities. They moved in and out of the labour force as they returned to school or looked after family responsibilities. They switched from full to part-time employment (particularly women) and vice versa. Once employed, they changed employers and occupations.

Chart 2-24. Percentage of 1986 graduates who made a change in their labour force status between May 1988 and March 1991

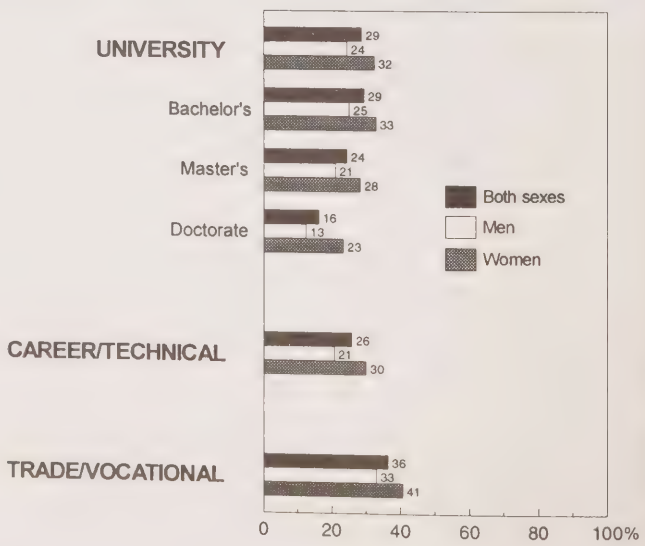
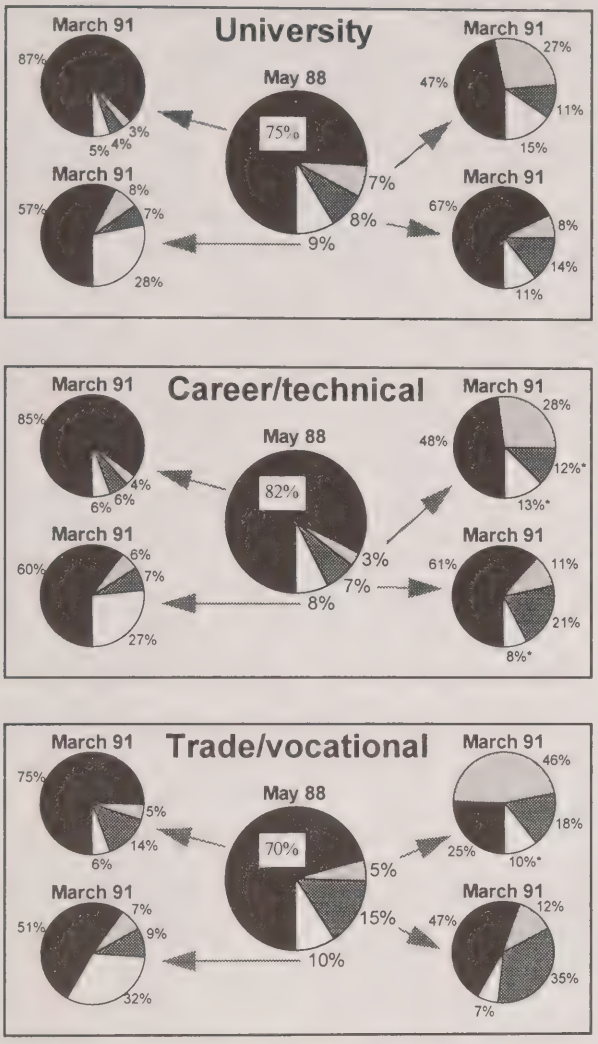


Chart 2-25. Changes in the labour force status of 1986 graduates between May 1988 and March 1991



1988 Labour force status	1991 Labour force status				
	Employed			Unemployed	Not in labour force
	Total	Full-time	Part-time		
	%				
Bachelor's					
Employed	91	83	8	5	4
Full-time	92	86	5	5	3
Part-time	85	58	28	7	8
Unemployed	78	68	10	15	8
Not in labour force	62	47	15	11	27
Master's					
Employed	94	86	8	3	3
Full-time	95	90	5	3	2
Part-time	86	51	35	7	7
Unemployed	83	60	22	9*	8
Not in labour force	65	45	20	9	26
Doctorate					
Employed	97	93	4	2*	1*
Full-time	97	94	3	2*	1*
Part-time	98	71	28	-	--
Unemployed	88	73	16*	12*	-
Not in labour force	92	80	12**	--	-

Changes in Labour Force Status, May 1988 to March 1991

Chart 2-24 shows the percentage of graduates who made a change in their labour force status between 1988 and 1991. They ranged from a high of 36% among trade/vocational graduates to a low of 16% among doctoral graduates. Female graduates, at all levels, were more likely to have made a change. Chart 2-25 shows where changes in labour force status took place.

1988 Full-time Workers in 1991

Most of the full-time workers in 1988 still worked full-time in 1991. Trade/vocational graduates were the least likely of all graduates to remain employed full-time with 14% of those employed full-time in 1988 being unemployed in 1991. Very few of the university or career/technical graduates who worked full-time in 1988 were unemployed in 1991. Female graduates at all levels were less likely than males to stay employed full-time as

female graduates were more likely to change to part-time status or to leave the labour force.

1988 Part-time Workers in 1991

Over half of the graduates who worked part-time in 1988 were full-time workers in 1991. This switch from part-time to full-time work is not surprising given that many graduates said they worked part-time in 1988 because they could not find full-time work. Furthermore, many university and career/technical graduates working part-time in 1988 were students. Generally, female graduates working part-time in 1988 were more likely to remain employed part-time than were males, particularly at the doctoral and trade/vocational levels.

1988 Unemployed in 1991

Trade/vocational graduates had the highest level of unemployment of all graduates in 1988 and unemployed graduates at this level were the most likely to continue to be unemployed in 1991. Male trade/vocational graduates who were unemployed in 1988 were more likely than female graduates at this level to remain unemployed. More of the female trade/vocational graduates who were unemployed in 1988 left the labour force. University graduates who were unemployed in 1988 were the most likely of all graduates to be working by 1991.

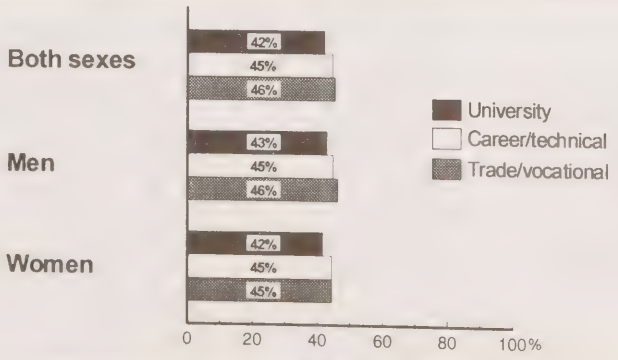
1988 Not in the Labour Force in 1991

Close to three-quarters of the university and career/technical graduates who were not in the labour force in 1988 participated in the labour force in 1991. Most of these "new" participants were employed full-time. Trade/vocational graduates who were not in the labour force in 1988 were less likely than other graduates to have entered the labour force by 1991, however, more than half of these graduates had become labour force participants.

The majority of university graduates who entered the labour force in 1991 were students in 1988 (84% of the men and 75% of the women). The percentage of students was also high at the career/technical and trade/vocational levels, particularly for men (72% and 53%, respectively). About 40% of the female career/technical and trade/vocational graduates who entered the labour force said that personal or family responsibilities kept them from participating in 1988.

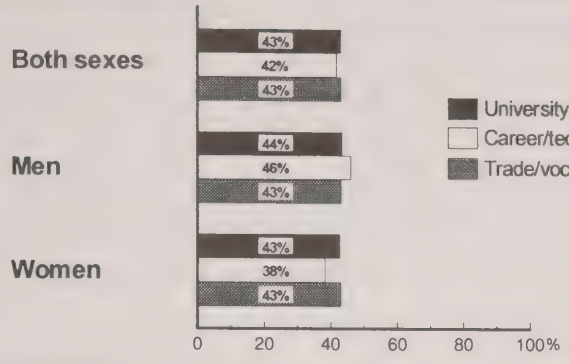
Women who were out of the labour force in 1988 were more likely than men to remain out of the labour force in 1991, particularly at the trade/vocational and career/technical levels. At the university level, this difference between men and women was much smaller. What accounts for the greater difference between men and women at the career/technical and trade/vocational levels? Graduates who said they were going to school in 1988 were much more likely to enter the labour force by 1991 than were those who did not participate due to personal or family responsibilities, an

Chart 2-26. Percentage of workers who changed employer between May 1988 and March 1991, by sex



	Both sexes	Men	Women
	%		
Bachelor's	44	45	43
Master's	34	33	35
Doctorate	32	35	28

Chart 2-27. Percentage of workers who changed occupation between May 1988 and March 1991, by sex



	Both sexes	Men	Women
	%		
Bachelor's	44	44	43
Master's	41	39	42
Doctorate	31	33	26

illness or disability. About half of the female trade/vocational and career/technical graduates who were not in the labour force in 1988 cited personal or family responsibilities as the reason they were not seeking work, while among female university graduates "going to school" was the main reason.

Many graduates changed their labour force status between 1988 and 1991 and many also changed employers, occupations and industries.

Workers in both May 1988 and March 1991: Employer, occupation and industry change

The majority of graduates who were employed in 1988 were also working in 1991, but many of them were not working for the same employer or at the same occupation.

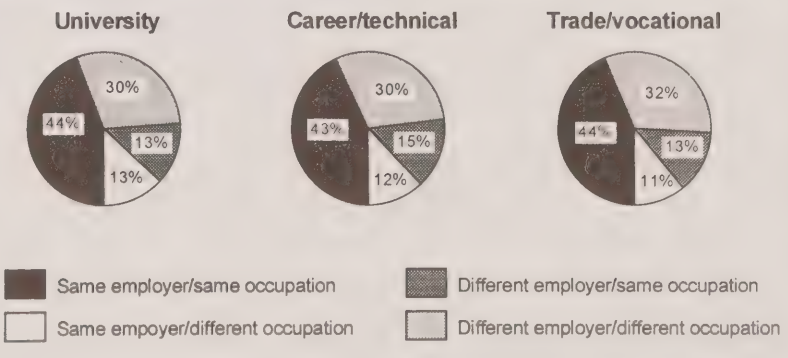
Employers and Occupations

Over one-third of the graduates changed employers between 1988 and 1991.[8] Master's and doctoral graduates had more stable ties to their 1988 employer than did other graduates (Chart 2-26).

About 2 in 5 bachelor's, master's, career/technical and trade/vocational graduates and about one-third of doctoral graduates changed occupations (Chart 2-27) (*see Text Box 4*).

Chart 2-28 shows a combined measure of employer and occupation change. At all levels, except the doctoral, at least half of the graduates had made a change in either their employer or their occupation. Usually, changing employers meant changing occupations.

Chart 2-28. Combined measure of employer and occupation change between May 1988 and March 1991



	Bachelor's	Master's	Doctorate
	%		
Same employer/same occupation	43	50	60
Same employer/different occupation	13	16	8
Different employer/same occupation	14	9	10
Different employer/different occupation	31	25	22

TEXT BOX 4: Occupation and Industry Matches

Occupation and industry change can be assessed by matching Standard Occupatioal Classification (SOC) and Standard Industrial Classification (SIC) codes assigned to the jobs held in May 1988 and March 1991. In this chapter, occupational change is measured at the 4-digit SOC level and industry change is measured at the 3-digit SIC level.

The 4-digit SOC is the most detailed level of occupational coding used. Occupation change is most likely to be identified at this level of coding. For example, a Registered Nursing Assistant (SOC 3134) who becomes a Registered Nurse (SOC 3131) would be identified as changing occupations at the 4-digit level. At the 3-digit level (SOC 313) and at the 2-digit level (SOC 31) no occupation change would be identified. Industry change is also based on the level of detail used in coding; the 3-digit level is the most detailed. If a graduate worked in the Fishing Industries (SIC 031) in May 1988 and in March 1991 worked in Trapping Industries (SIC 033), that graduate would change occupations at the 3-digit level but not at the 2 digit level.

Table 2-2. Combined measure of occupation and employer change for university graduates, by field of study

Field of study	Total	Same employer/ same occupation	Same employer/ different occupation	Different employer/ same occupation	Different employer/ different occupation	Total	Same employer/ same occupation	Same employer/ different occupation	Different employer/ same occupation	Different employer/ different occupation
	% distribution					% distribution				
	Total university					**Bachelor's**				
All fields	100	44	13	13	30	100	43	13	14	31
Agriculture & biological sciences	100	35	14	11	40	100	34	15	11	41
Commerce, management and administration	100	35	19	15	31	100	34	18	16	32
Education	100	58	11	11	20	100	57	10	11	21
Engineering and Applied science	100	38	18	10	34	100	35	19	10	35
Fine and applied arts	100	42	15*	6**	38	100	42	14*	6**	38
General arts and science	100	42	12*	12*	35	100	41	11*	12*	35
Health professions	100	52	9	23	16	100	51	8	24	16
Humanities	100	43	11	12	34	100	42	11	12	36
Mathematics and physical sciences	100	45	10	20	24	100	44	10	21	24
Social sciences	100	41	12	10	37	100	40	12	10	38
	Master's					**Doctorate**				
All fields	100	50	16	9	25	100	60	8	10	22
Agriculture & biological sciences	100	44	13	10	33	100	56	7*	5*	32
Commerce, management and administration	100	41	23	9	27	100	82	--	--	--
Education	100	62	16	5	17	100	66	10	6*	18
Engineering and Applied science	100	55	14	10	21	100	51	11	8	31
Fine and applied arts	100	41	26*	--	31	100	77*	--	-	-
General arts and science	100	44	23*	6**	28	..	..	..	...	..
Health professions	100	60	11	12	17	100	58	11	10	21
Humanities	100	49	12	11	28	100	66	9*	9*	16
Mathematics and physical sciences	100	53	9	14	24	100	50	8	12	30
Social sciences	100	44	13	11	32	100	61	6	16	18

In terms of their field of study, bachelor's and master's graduates of education and health professions were less likely to change employers and/or occupations than were graduates of most other fields. Doctoral graduates of commerce, management and administration were more likely to remain with the same employer in the same occupations than were most other doctorates. At the career/technical and trade/vocational levels, health science graduates were more likely to stay with the same employer and occupation than were most other graduates. Social science graduates at the trade/vocational

Table 2-3. Combined measure of occupation and employer change for career/technical and trade/vocational graduates, by field of study

Field of study	Total	Same employer/ same occupation	Same employer/ different occupation	Different employer/ same occupation	Different employer/ different occupation	Total	Same employer/ same occupation	Same employer/ different occupation	Different employer/ same occupation	Different employer/ different occupation
	% distribution					% distribution				
	Career/technical					Trade/vocational				
All fields	100	43	12	15	30	100	44	11	13	32
Arts	100	30	7**	15*	48	100	40	5**	16*	39
Business and commerce	100	35	17	15	33	100	38	13	14	36
Engineering and applied sciences	100	41	14	13	32	100	42	12	14	33
Health sciences and related	100	62	4	23	11	100	60	6*	16	19
Humanities and related	100	44*	--	23**	--	100	--	-	-	94
Natural sciences and primary industries	100	42	13	6	40	100	43	13	12	32
Social sciences and services	100	46	10	12	32	100	59	6**	6**	30

Table 2-4. Combined measure of occupation and employer change by satisfaction with May 1988 job

		Very satisfied	Satisfied	Dis-satisfied	Very dis-satisfied	Don't know/ No opinion
		% distribution				
Total university	Total	100	100	100	100	100
	Same employer/same occupation	53	39	22	24	36*
	Same employer/different occupation	13	14	13	7**	--
	Different employer/same occupation	13	13	14	9**	--
	Different employer/different occupation	21	34	52	59	50*
Bachelor's	Total	100	100	100	100	100
	Same employer/same occupation	52	38	21	24*	34*
	Same employer/different occupation	13	13	12	7**	--
	Different employer/same occupation	14	14	14	9**	--
	Different employer/different occupation	22	35	53	60	56*
Master's	Total	100	100	100	100	100
	Same employer/same occupation	56	46	30	27*	44*
	Same employer/different occupation	16	16	15	--	--
	Different employer/same occupation	9	9	13*	17**	--
	Different employer/different occupation	19	29	42	49	21**
Doctorate	Total	100	100	100	100	100
	Same employer/same occupation	65	52	30*	56*	80
	Same employer/different occupation	8	9	--	--	--
	Different employer/same occupation	9	13	11**	-	-
	Different employer/different occupation	18	27	50	19**	-
Career/ technical	Total	100	100	100	100	100
	Same employer/same occupation	50	40	22	22*	26**
	Same employer/different occupation	13	12	9*	--	--
	Different employer/same occupation	14	17	14	12*	--
	Different employer/different occupation	23	31	55	57	58*
Trade/ vocational	Total	100	100	100	100	100
	Same employer/same occupation	51	40	28	13**	30*
	Same employer/different occupation	11	11	10*	17**	--
	Different employer/same occupation	14	14	10*	15**	--
	Different employer/different occupation	25	36	53	55	48

level also tended to remain with the same employer in the same occupation (Tables 2-2 & 2-3).

Reasons for Changing Employers/Occupations

There are many reasons for changing employers and/or occupations. There appears to be a relationship between job satisfaction in 1988 and switching employers and/or occupations. Graduates who were either dissatisfied or very dissatisfied with their 1988 job were less likely to be with the same employer and working at the same occupation than were graduates satisfied or very satisfied with their jobs. The percentage remaining with the same employer in the same occupation was highest for those very satisfied with their jobs. About half of the graduates who were very satisfied with their jobs in 1988 still made some type of change to their employment status,

Table 2-5. Combined measure of occupation and employer change, by relationship between May 1988 job and education received in 1986

		Relationship of job to education		
		Directly Related	Partly Related	Not Related
		% distribution		
Total university	Total	100	100	100
	Same employer/same occupation	50	42	30
	Same employer/different occupation	11	15	15
	Different employer/same occupation	18	9	7
	Different employer/different occupation	21	34	48
Bachelor's	Total	100	100	100
	Same employer/same occupation	49	41	30
	Same employer/different occupation	11	14	15
	Different employer/same occupation	19	9	7
	Different employer/different occupation	21	36	49
Master's	Total	100	100	100
	Same employer/same occupation	55	47	39
	Same employer/different occupation	14	18	14
	Different employer/same occupation	10	8	8*
	Different employer/different occupation	21	26	39
Doctorate	Total	100	100	100
	Same employer/same occupation	62	57	42
	Same employer/different occupation	7	10	16**
	Different employer/same occupation	11	9	9**
	Different employer/different occupation	20	25	33
Career/ technical	Total	100	100	100
	Same employer/same occupation	48	37	30
	Same employer/different occupation	10	14	15
	Different employer/same occupation	18	13	5
	Different employer/different occupation	24	35	50
Trade/ vocational	Total	100	100	100
	Same employer/same occupation	48	38	34
	Same employer/different occupation	9	11	15
	Different employer/same occupation	16	8	9
	Different employer/different occupation	26	43	43

therefore job satisfaction can only partially explain job mobility (Table 2-4).

Similarly, graduates whose 1988 job was directly related to their 1986 education program were more likely to remain with the same employer in the same occupation than were those in partly related or unrelated jobs. However, about half of the graduates who had jobs directly related to their educational program also made some type of change to their employment status. Here again, the relationship between jobs and education can also only help to explain job mobility (Table 2-5).

Industry

Graduates working in 1988 and 1991 were more likely to stay in the same industry than they were to remain with the same employer or to keep the same occupation (Chart 2-29). Again, master's and doctoral graduates were more likely to keep working in the same industry than were other graduates.

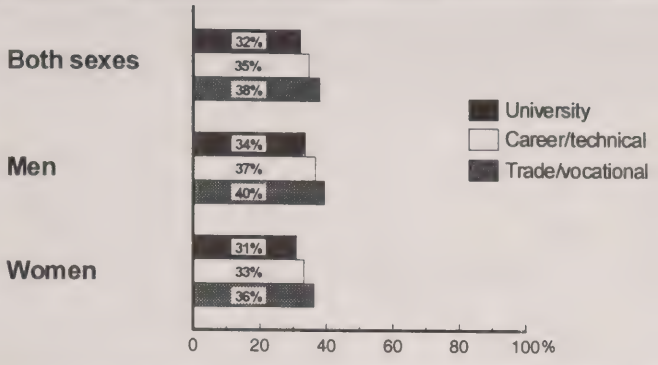
Employment growth or loss in occupations and industries

Another way to explore changes in labour force activities is to look at employment growth and loss across occupations and industries between 1988 and 1991. Occupations and industries that gain employment attract workers from other occupations and industries, from the ranks of the unemployed and from those who were outside the labour force. As graduates leave the student labour market in search of jobs more suited to their long-term career goals, some occupations and industries may lose employment. A lack of employment opportunities in an occupation or industry could also result in job turnover.

Employment Growth and Loss in Occupations

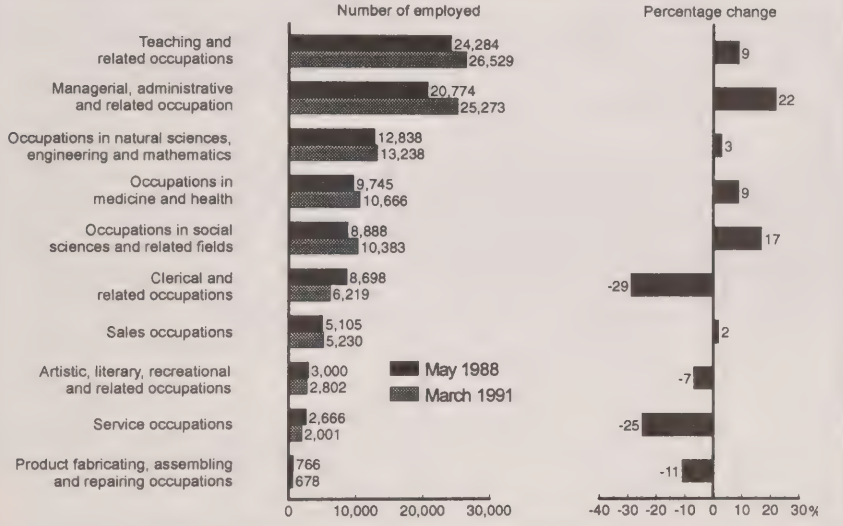
Between 1988 and 1991, the number of graduates employed in managerial, administrative and related occupations increased substantially at all levels. At the career/technical and trade/vocational levels, the increase in employment in this occupational group occurred in spite of a decrease in overall employment (Charts 2-30 to 2-32).

Chart 2-29. Percentage of workers who changed industry between May 1988 and March 1991, by gender



	Both sexes	Men	Women
	%		
Bachelor's	33	35	32
Master's	27	27	27
Doctorate	22	23	19

Chart 2-30. University: Select occupational distribution and percentage change in employment by occupation, May 1988 and March 1991



Occupation	Bachelor's			Master's			Doctorate		
	Distribution		% change	Distribution		% change	Distribution		% change
	May 1988	March 1991		May 1988	March 1991		May 1988	March 1991	
Teaching and related occupations	20,838	22,739	9	2,891	3,188	10	555	603	9
Managerial, administrative and related occupations	17,253	21,159	23	3,433	3,976	16	88	138	57
Occupations in natural sciences, engineering and mathematics	10,836	11,223	4	1,768	1,797	2	234	218	-7
Occupations in medicine and health	9,010	9,846	9	647	743	15	88	77	-13
Occupations in social sciences and related fields	6,912	8,458	22	1,810	1,768	2	165	157	-5
Clerical and related occupations	8,395	5,903	-30	290	303	4	--	--	-
Sales occupations	4,888	5,020	3	214	207	-3	--	--	-
Artistic, literary recreational and related occupations	2,643	2,508	-5	349	286	-18	--	--	-
Service occupations	2,593	1,936	-25	73*	64*	-12	-	--	-
Product fabricating, assembling and repairing occupations	741	651	-12	--	--	-	--	--	-

At the bachelor's level, the number of employed graduates rose 5% between 1988 and 1991. This increase was not consistent across occupations. The percentage increase in the number of workers in managerial, administrative and related occupations and social science and related occupations was much higher than the overall increase. On the other hand, employment in clerical and related occupations and service occupations fell dramatically. Employment in teaching and related occupations and in medicine and health occupations grew while employment in artistic, literary, recreational and related occupations decreased.

In both years, bachelor's graduates tended to work in managerial, administrative and related or in teaching occupations. Together these two occupational groups accounted for 44% of employment in 1988 and 48% of employment in 1991.

Employment at the overall master's level grew 7% in this period. Managerial, administrative and related; medicine and health; and teaching occupations experienced employment growth above

Chart 2-31. Career/technical: Select occupational distribution and percentage change in employment by occupation, May 1988 and March 1991

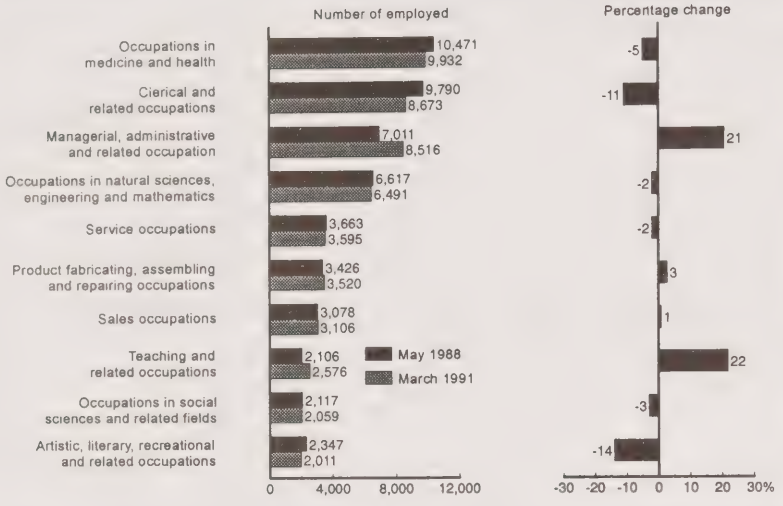
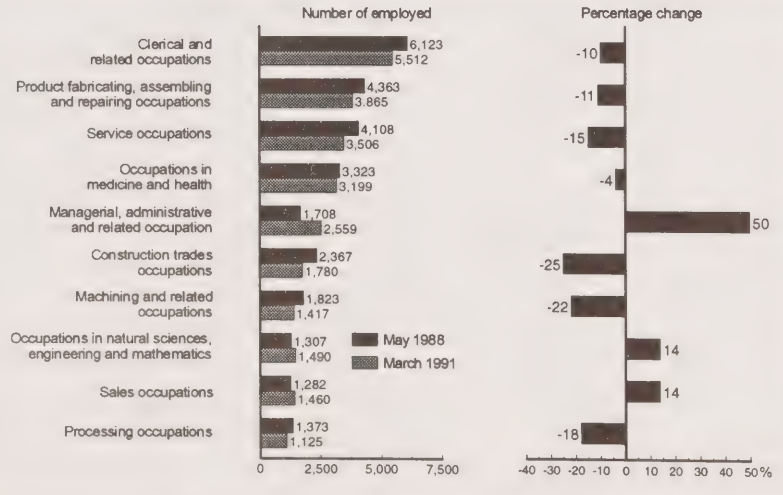


Chart 2-32. Trade/vocational: Select occupational distribution and percentage change in employment by occupation, May 1988 and March 1991



the overall percentage increase. On the other hand, employment in artistic, literary, recreational and related occupations fell.

Like bachelor's graduates, master's graduates tended to work in managerial, administrative and related or in teaching occupations. Almost 3 in 5 master's graduates worked in these two occupational groups.

At the doctoral level, overall employment grew 5%. The number of workers in managerial, administrative and related occupations went up sharply and employment in teaching occupations also rose. Employment fell in natural science, engineering and maths; social science and related; and medicine and health occupations, among others.

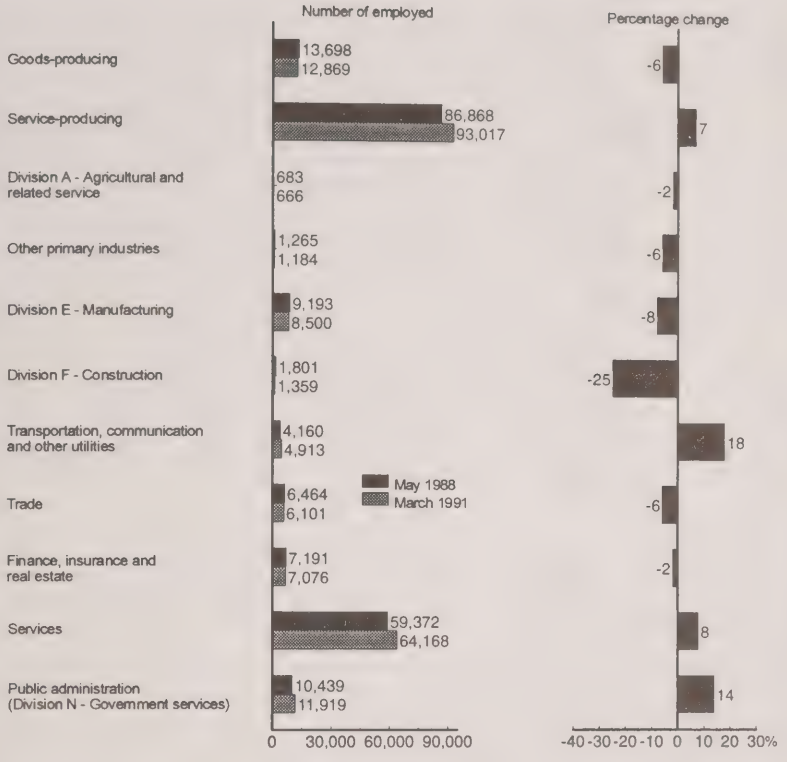
Doctoral graduates were heavily concentrated in teaching and related occupations - about half of the doctoral graduates worked in teaching occupations in 1988 and 1991.

While employment rose for university graduates, the number of employed graduates dropped 2% at the overall career/technical level. Though employment fell in most major occupational groups, it rose 22% in teaching and related occupations. Several occupational groups experienced losses in employment that were much greater than the overall drop including clerical and related occupations; artistic, literary, recreational and related occupations; and construction occupations.

In 1988 and 1991, four occupational groups accounted for over 60% of employment at the career/technical level: managerial, administrative and related; natural science, engineering and mathematics; medicine and health; and clerical and related.

Total employment also dropped at the trade/vocational level - by 5%. The number of workers fell substantially in service occupations, product fabricating occupations and clerical and

Chart 2-33. University: Industry distribution and percentage change in employment by industry, May 1988 and March 1991



Industry	Bachelor's			Master's			Doctorate		
	Distribution		% change	Distribution		% change	Distribution		% change
	May 1988	March 1991		May 1988	March 1991		May 1988	March 1991	
Goods producing	12,302	11,455	-7	1,323	1,328	-	74	86	16
Service producing	75,345	80,632	7	10,413	11,229	8	1,109	1,156	4
Division A Agricultural and related	641	634	-1	39*	31*	-21	--	--	-
Other primary industries	1,087	1,029	-5	165	144	-13	--	--	-
Division E Manufacturing	8,308	7,631	-8	842	810	-4	43	59	37
Divison F Construction	1,693	1,247	-26	106	110	4	--	--	--
Transportation, communications and other utilities	3,638	4,322	19	500	570	14	--	--	--
Trade	6,108	5,775	-5	348	319	-8	--	--	-
Finance, insurance and real estate	6,597	6,510	-1	588	558	-5	--	--	--
Services	50,944	54,921	8	7,487	8,252	10	940	995	6
Public Administration	8,630	10,018	16	1,662	1,762	6	146	139	-5

related occupations. Together these three occupations accounted for 46% of trade/vocational employment in 1988 and 43% of employment in 1991. The number of workers in construction trades and processing occupations also dropped dramatically. In several occupations, however, the number of workers went up including natural science, engineering and maths; social science and related; teaching and related; sales; and transport equipment operators.

Employment Growth and Loss in Industries

At the bachelor's, career/technical and trade/vocational levels, employment fell in goods producing industries between 1988 and 1991. With the exception of the trade/vocational level, where there was a slight decrease, employment increased in service producing industries.

For both bachelor's and master's graduates, employment growth between 1988 and 1991 was especially marked in transportation, communication and other utilities; services; and public administration industries. Losses in employment occurred in the manufacturing; agriculture; primary industries; trade; and finance, insurance and real estate industries. By contrast, at the doctoral level, employment fell in the public administration industry and grew in the manufacturing industry.

Bachelor's graduates saw a rather large decrease in the number of workers in the construction industry. While employment in retail trade grew for master's graduates, it fell substantially for bachelor's graduates (Charts 2-33 to 2-35).

Chart 2-34. Career/technical: Industry distribution and percentage change in employment by industry, May 1988 and March 1991

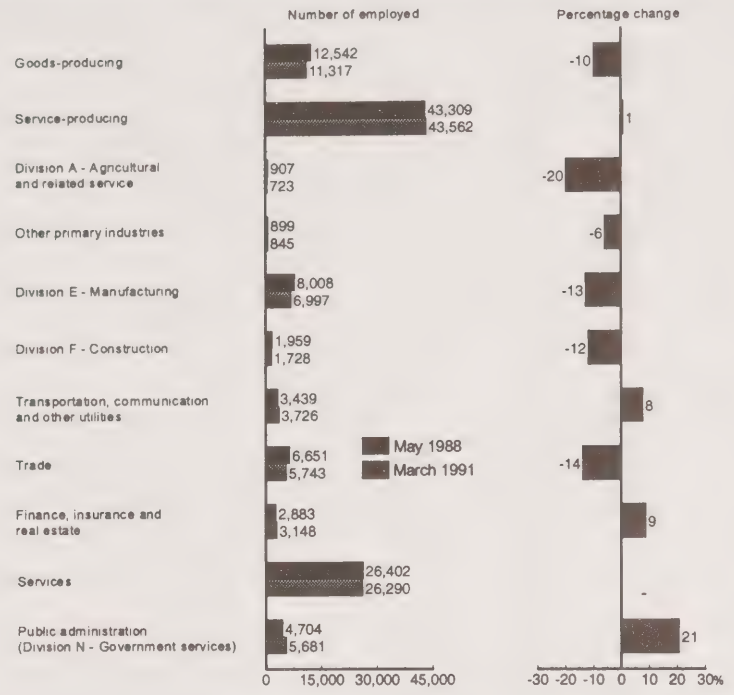
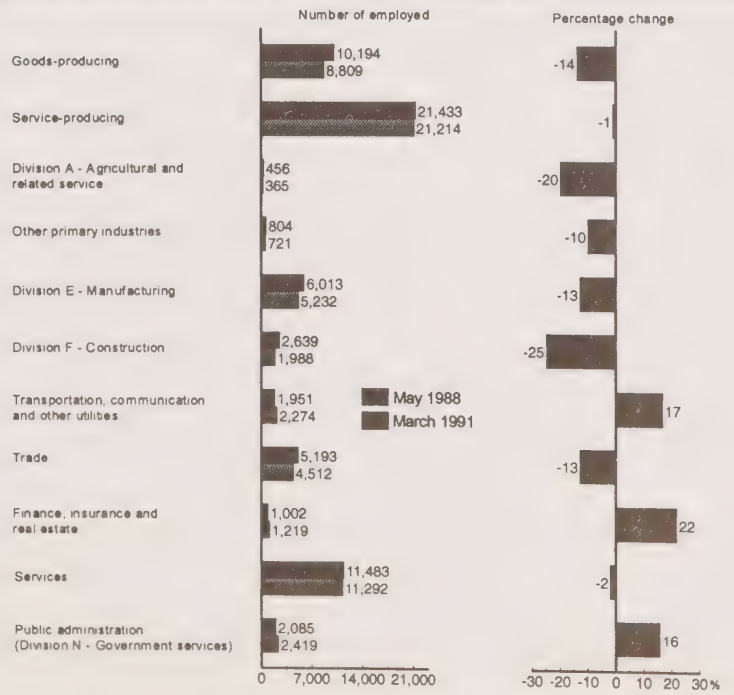


Chart 2-35. Trade/vocational: Industry distribution and percentage change in employment by industry, May 1988 and March 1991



Most of the doctoral (80%) and a large proportion of bachelor's (60%) and master's graduates (66%) were employed in services industries in 1991.

Employment decreased for career/technical and trade/vocational graduates in the following industries: agriculture, other primary, manufacturing, construction, trade (particularly retail trade), and services (although employment in education services did increase substantially). Employment increased in transportation, communication and other utilities; finance, insurance and real estate; and public administration industries.

In many ways, the employment patterns of the 1986 graduates by industry reflect overall trends in Canada. Annual averages from Statistics Canada's Labour Force Survey show that between 1988 and 1991, employment in goods-producing industries fell while employment in service producing industries increased. Employment decreased in the manufacturing and construction industries. On the other hand, employment was up in community, business and personal services; finance, insurance and real estate; public administration and transportation; and electric power industries.

Conclusion

The school-to-work transition is best described as a process. "Go to school, graduate, find a job, retire" is not an appropriate description of graduates' transition to the labour market. Patterns of continuing

education, movements in and out of the labour market, and changes in employers and occupations are evidence of a dynamic transition to the work world.

Several indicators suggest that education assists in the transition from school-to-work. In 1991, the higher the level of education, the lower the unemployment rate of graduates. Only at the university level did the labour market position of graduates improve between 1988 and 1991. Between 1988 and 1991, master's and doctoral graduates were more likely to remain employed full-time, to stay with the same employer and to keep working in the same industry than were graduates at the lower levels.

REFERENCES AND NOTES

[1] The proportion of graduates with disabilities was higher at the trade/vocational level than at the university or career/technical levels.

[2] Not all graduates were asked if they were unemployed in 1990. Graduates who worked continuously for the same employer between 1988 and 1991 were not asked and graduates whose 1991 job began prior to 1990 were also not asked about unemployment during 1990. Therefore the total number of graduates who were unemployed for at least one month may be slightly underestimated.

[3] For more information on the 1982 graduates see Clark, Warren. **The Class of 82 Revisited**. A joint publication of Employment and Immigration Canada and Statistics Canada, 1989.

[4] Having children also appeared to affect the labour force activities of single men and women such that single women with children seemed to be less likely to work full-time than single women without children while the opposite was the case for men. The number of single women and men with children, however, was so small that these trends may not be reliable.

[5] For an analysis of the employment-equity groups among a more recent graduate cohort (1990 graduates) see: Wannell, Ted and Caron, Nathalie, **A Look at Employment-Equity Groups Among Recent Postsecondary Graduates: Visible Minorities, Aboriginal Peoples and the Activity Limited**, Business and Labour Market Analysis, Statistics Canada. 1994.

[6] Cross, Philip. "*The labour market: Year-end review.*" **Perspectives on Labour and Income**, Statistics Canada Catalogue 75-001, Spring 1992.

[7] Picot, G., G. Lemaitre, P. Kuhn. "*Labour Markets and Layoffs During the Last Two Recessions.*" **Canadian Economic Observer**, Statistics Canada Catalogue 11-010, March 1994.

[8] In a small number of cases, graduates could be working for the same employer in March 1991 that they worked for in May 1988 but the job referred to would be a secondary, not their main job.

Chapter 3. The Earnings of 1986 Graduates

by Geoff Bowlby

In the years following graduation, as the hard-work associated with job search comes to an end, students replace financial worry with the promise of monetary rewards, often after years of frugality. However, depending on the type of program, level and type of degree a student graduates with, these rewards will necessarily differ. Related to this, the type of occupation chosen by the graduate will also impact income. The purpose of this chapter is to analyse the median earnings profile of 1986 graduates who were working full-time two and five years after graduation (1988 and 1991 respectively), paying particular attention to how earnings were affected by the choice of field of study and occupation. All earnings are expressed in 1991 dollars.

Highlights

From the findings it was worth noting, first of all, that education pays. As the graduates' education level increased, so did their earnings. This gives evidence to suggest that education signals an employee's productivity and/or improves his abilities, thereby raising his earnings.

Secondly, the graduates' choices of study definitely affected their earnings. Graduates from some fields of study were in higher demand relative to supply than others. In 1991, engineering & applied science graduates were the best paid graduates of university and trade/vocational programs. This differed from 1988, when university health science graduates earned the most of all university graduates. Graduates of health sciences earned the most at the career/technical level in both years of study.

Looking at the most common occupations in Canada, university graduates holding jobs in managerial & administrative, medicine & health and natural science, engineering & mathematics earned the most in 1991. Among this group, management occupations experienced the largest increase in median earnings. In both 1988 and 1991, career/technical graduates working in medicine & health earned more than all other common occupations held by graduates at that level. Because of relatively high earnings growth, trade/vocational graduates from product fabricating, assembling & repair occcupations had the highest median earnings in 1991.

Female median earnings were 86% of the male median in 1991, down from 93% in 1988. However, as the level of education increased, the gender earnings gap decreased. By 1991, female doctorates earned 98% of male doctorate salaries.

I. How Did The Level of Education Affect Earnings?

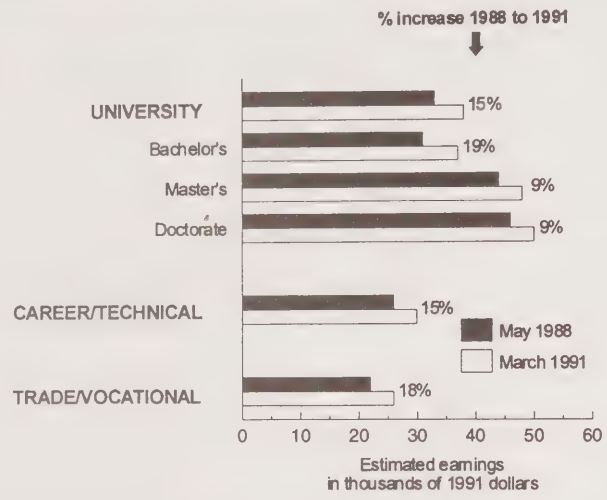
One would imagine that level of education would positively affect earnings. The reasons for this are twofold. Skills and knowledge are usually learned in the progress of completing educational programs, resulting in greater abilities and higher productivity once graduated. As a reward for such improved "human capital", the employer would be willing to pay the more productive employee at a higher rate.

The completion of education programs also serves to signal prospective employers. Even if the skills desired by employers are not obtained through higher education, the employers may still be interested in hiring the graduate since the attainment of a degree, diploma or certification is a good reflection of a person's general abilities and productivity. As a result of these two points, it would follow that those who have graduated from a four-year university program would, in general, be better paid than a trade/vocational program graduate.

Indeed, this is the case in Canada. As in 1988, there was a very definite relation between earnings and education levels in 1991. Generally, the more education received, the greater the earnings potential was. As a result, university graduates earned more than their career/technical counterparts, who in turn earned more than trade/vocational graduates. The estimated median level of earnings for

university graduates in 1991 was $38,000 while the corresponding figure for career/technical graduates was $30,000. Meanwhile, trade/vocational graduates earned $26,000. Similarly, as the level of university degree increases, so did median earnings. Doctorate holders earned approximately $50,000 per year, while master's graduates received $48,000 and bachelor's graduates earned $37,000 (Chart 3-1).

Chart 3-1. Estimated median annual earnings of 1986 graduates working full-time in May 1988 and March 1991



Regardless of the level of study, there were considerable increases in real earnings between 1988 and 1991. Bachelor's graduates saw their earnings rise by 19% between 1988 and 1991, slightly more than the increase for trade/vocational graduates (18%). Career/technical graduates experienced the next most significant increase (15%) followed by identical increases at the master's and doctoral levels (9%). As a result of these trends, trade/vocational earnings were 68% of general university level earnings in 1991, virtually unchanged from 1988.

II. Did the Graduates' Choices of Study Affect Their Earnings?

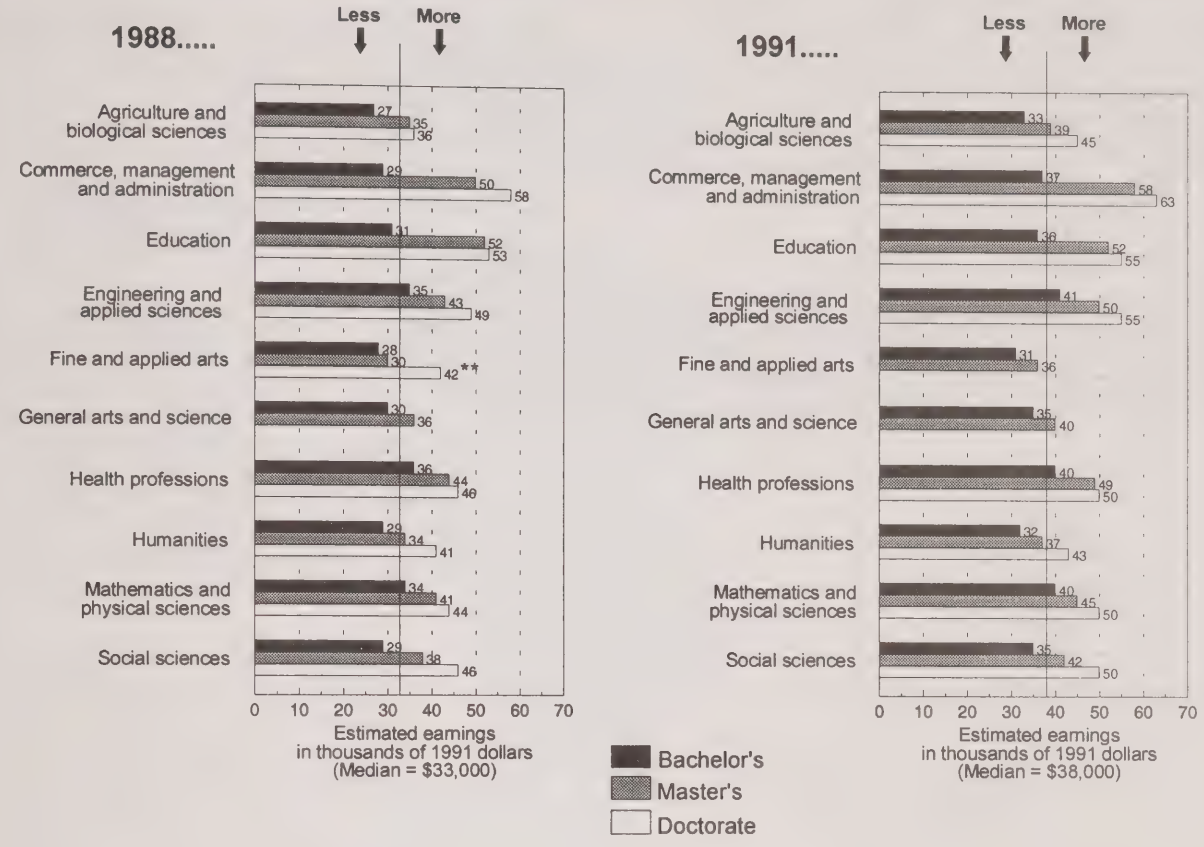
Despite the strong connection between levels of education and earnings, it would be wrong to assume that the level of education was the only factor affecting earnings. Earnings, were also determined by the graduates' fields of study. Despite the fact that, in general, doctorate graduates earned the most, having a PhD in one field of study did not guarantee a higher wage than that of a graduate at a lower level who studied in another field. In Chart 3-2, the earnings of university graduates from the major fields of study are compared to the medians quoted in Section I.

a) University Fields of Study

In 1991, the median salary of engineering & applied sciences bachelor's graduates ($41,000) was higher than that received by bachelor's graduates from all other fields of study. In fact, the engineering & applied sciences, health professions ($40,000) and mathematics & physical sciences ($40,000) bachelor's graduates were the only bachelor's groups to receive median salaries in excess of the overall university median. At the other end of the scale, bachelor's graduates who studied humanities and fine & applied arts received only $32,000 and $31,000, respectively.

In the master's category, graduates from commerce, management & administration programs earned the most ($58,000) in 1991. The same group was also the top earner in the doctorate category ($63,000). The next best paid set of master's and doctorate graduates were those who had education degrees. At the master's level, they earned an estimated $52,000, jumping to $55,000 with a doctorate. Other higher paying fields of study at the master's and doctorate levels include engineering & applied sciences ($50,000 and $55,000, respectively), health professions ($49,000 and $50,000), mathematics & physical sciences ($45,000 and $50,000) and social sciences ($42,000 and $50,000).

Chart 3-2. Working full-time, did 1986 university graduates, by field of study, earn more or less than the university median?



Between 1988 and 1991, there were some interesting changes in relative earnings. While the median earnings for all university graduates rose approximately 15% in real terms, those who had graduated from agriculture & biological science programs saw a 25% increase. Other large increases were realised for commerce, management & administration (21%), engineering & applied science (20%), general arts & science (20%) and social science (20%). Earnings growth was weak for those from the humanities (14%), mathematics & physical sciences (14%), education (12%), fine & applied arts (10%) and health profession (8%) fields.

b) Career/Technical Fields of Study

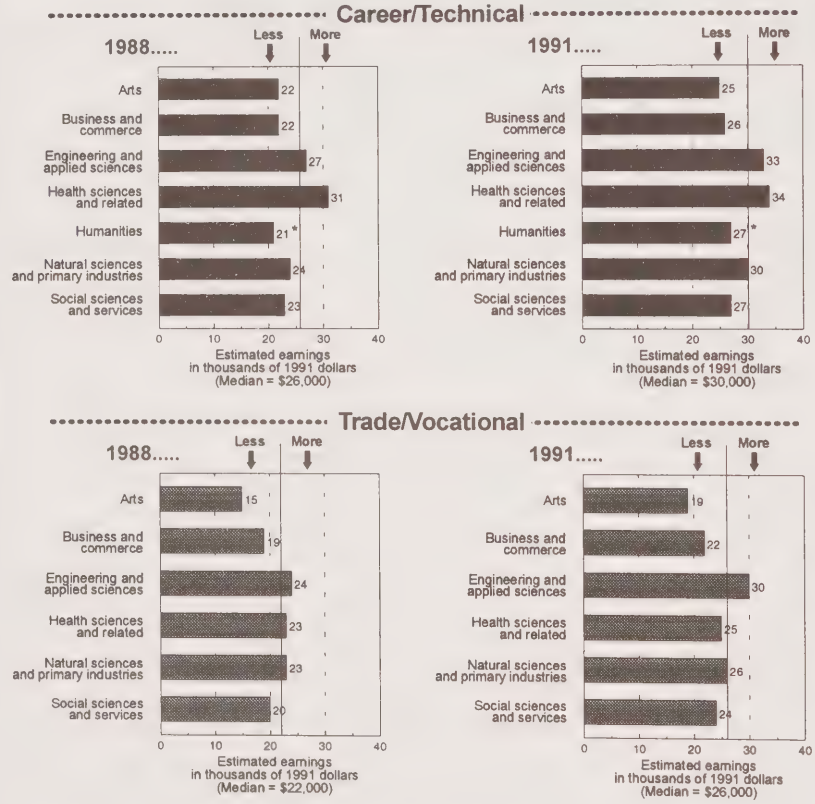
Graduates from health sciences & related programs earned more than all other fields of study at the career/technical level in both 1988 and 1991. With a median income of $34,000, they were slightly ahead of the next best group of earners, the engineering and applied sciences graduates, who made $33,000. Between 1988 and 1991, health graduates experienced a 10% increase in earnings, well behind the average increase of 15% experienced at the broad career/technical level. During that period, engineering & applied science graduates' earnings grew by 22%, leading towards a convergence of earnings of the top two groups. Natural sciences and primary industries graduates, the third best earnings group ($30,000) also gained relative to other groups, increasing their earnings by 25%. They were followed by social sciences & services (with earnings of $27,000 and growth of 17%), business & commerce ($26,000 and 18%), and arts ($25,000 and 14%). (Chart 3-3).

c) Trade/Vocational Fields of Study

Graduates from trade/vocational fields appeared to have similar earnings patterns to career/technical graduates. At $30,000 per year, engineering & applied sciences graduates earned the most in 1991, up from $24,000 in 1988. The natural sciences & primary industries group were next, with $26,000 earned in 1991, an increase of only 13% from three years earlier. The top earner at the career/technical level (health sciences), was third at the trade/vocational level, making $25,000 in 1991. Like higher education levels, those certified through trade/vocational health programs experienced an increase which was less than other groups. At only 9%, health sciences graduates had the lowest earnings growth of all fields of study, exactly one-half of the increase of the group as a whole.

Meanwhile, social sciences & services graduates had strong income growth of 20%, helping them to fourth place earnings of $24,000. This was followed by business & commerce ($22,000 earned and 16% growth) and arts ($19,000 and 27%). Arts graduates had the strongest earnings growth between 1988 and 1991 yet they had the lowest earnings in both years. (Chart 3-3)

Chart 3-3. Working full-time, did 1986 career/technical and trade/vocational graduates, by field of study, earn more or less than the median?



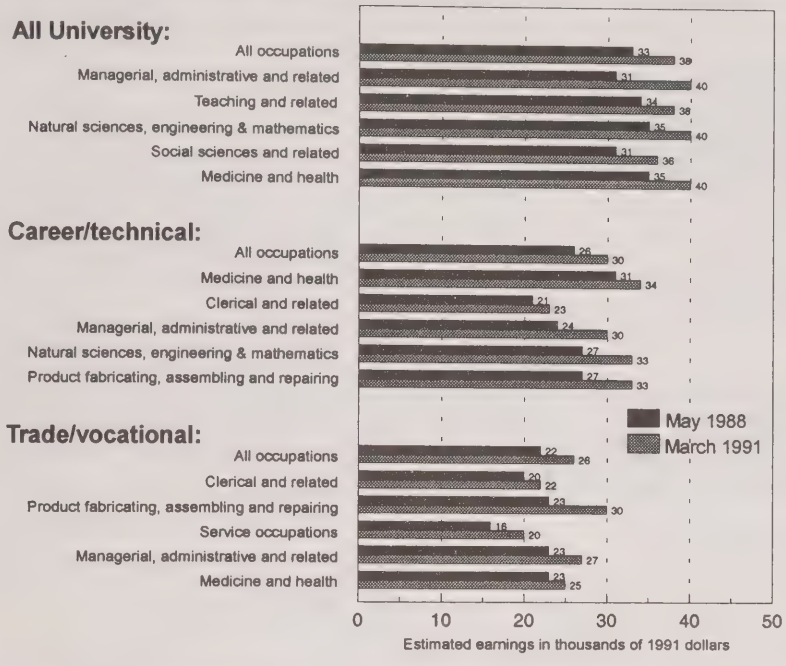
III. How Well Did the More Popular Occupations Pay?

With the establishment of the positive connection between education and earnings in section I, followed by evidence in section II showing that graduates from certain fields of study earned more than others, it is natural to consider the earnings of graduates by occupation.

In Chart 3-4, the 1988 and 1991 earnings levels are detailed for each of the five most popular (ie. common) occupations at each major certification level. Approximately 75% of the university respondents worked in the top five occupational groups, falling to 64% at the career/technical level, and 55% at the trade/vocational level. Due to their general significance, these occupations were the focus of the analysis.

At the university level, three of the top five occupations earned $40,000 in 1991: managerial & administrative; natural sciences, engineering & mathematics; and medicine & health. Of the three, managerial & administrative occupations experienced the greatest increase in earnings between 1988 and 1991, at 29%. Meanwhile, medicine & health and natural sciences, engineering & mathematics gained 14%. Those working in teaching & related occupations increased their pay by 12%, to

Chart 3-4. Earnings of popular (ie. common) occupations, by level of instruction, May 1988 and March 1991



earn approximately $38,000 in 1991, just ahead of social sciences and related occupations where workers earned $36,000, up 16% from 1988. With the exception of social sciences and related occupations, all these occupations were also among the top earners. Only processing occupations ($40,000) and product fabricating, assembling & repairing occupations ($38,000) earned as much.

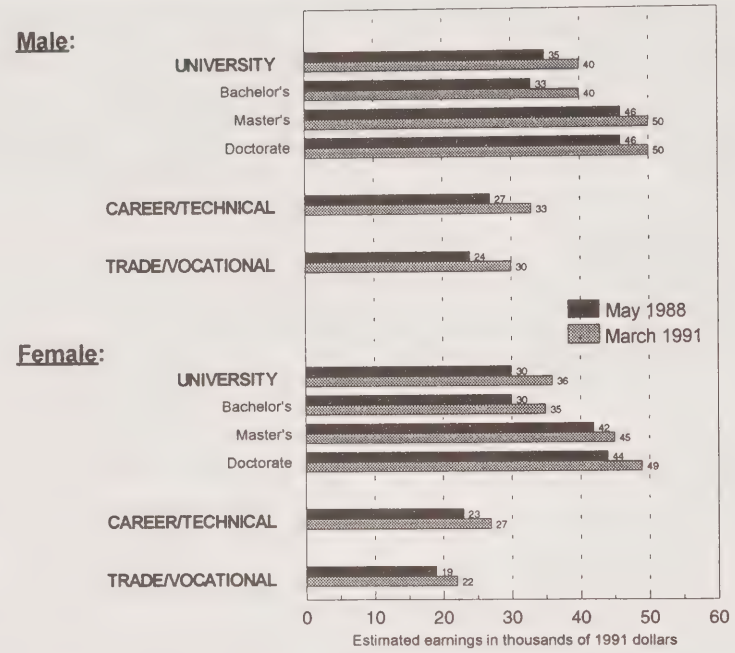
Career/technical graduates working in medicine & health made more than any of the five most popular occupational groups in 1991, earning $34,000 and 10% more than in 1988. This was followed by product fabricating, assembling & repairing ($33,000 with 22% growth), natural sciences, engineering & mathematics ($33,000 and 22%), managerial & administrative ($30,000 and 25%) and clerical ($23,000 and 10%) occupations. Despite the fact that these were the most popular occupations, only medicine & health occupations was among the best paid of all occupations held by career/technical graduates. Those working in mining & quarrying occupations headed that category, earning $50,000 in 1991, the highest of any occupation at all levels of education. Other high paying career/technical occupations included: machining & related ($35,000) and transport equipment handling jobs ($34,000).

Due to a 30% income increase between 1988 and 1991, trade/vocational graduates working at product fabricating, assembling & repairing jobs earned more than all other popular occupations. In 1991, they made $30,000. Similar to higher levels of education, managerial & administrative and medicine & health were among the most popular occupations. Graduates working in these areas earned $27,000 and $25,000, respectively, in 1991. Earnings at clerical jobs were the fourth highest in 1991, at $22,000, followed by service occupations, at $20,000. Interestingly, none of the most popular occupational groups were in the top-paying category. Thus, as the level of education decreased, there was an apparent decline in the relation between the numbers employed and relative earnings.

IV. Did Male Graduates Earn More than Female Graduates?

Male graduates made more than female graduates, the reasons for which are complex and unresolved. Male and female graduates took different programs at college and university, worked in different occupations, worked different hours, had different past work experiences, developed different skills and may have different goals. Gender discrimination is also perceived as having an influence. In examination of the first five of these factors, Wannell and Caron[1] found that female university graduates worked an average 3 hours per week less than their male counterparts, and this difference jumped to 4 hours per week at the community college level. As a result, the hourly wage gap was found to be much smaller than the yearly earnings gap.

Chart 3-5. Estimated median annual earnings of 1986 graduates working full-time in May 1988 and March 1991, by level of study and sex



Without accounting for the multitude of factors, the 1991 survey showed that the yearly earnings gap grew between 1988 and 1991(Chart 3-5). Female graduates earned $30,000 in 1991, up $3,000 from 1988. Meanwhile, male incomes grew $6,000 to reach $35,000. As a result of much faster male earnings growth, women graduates earnings dropped to 86% of their male counterparts from 93% in 1988. Popular female occupations like teaching, clerical, and medicine & health experienced weak earnings growth between 1988 and 1991. Meanwhile, men were most likely to work at managerial, natural science & engineering, and product fabricating & repairing jobs, which had stronger earnings growth.

Narrowing down these populations, it is clear that as the level of education decreases, the size of the yearly earnings gap increases. In 1991, female university graduates, at $36,000, made 90% of male university earnings. This decreased to 82% for career/technical graduates and 73% for those who completed trade/vocational programs. Similar trends were noticed for higher levels of university study as female doctorate graduates earned 98% of their male colleagues, while the master's ratio was 90% and the bachelor's stood at 88%.

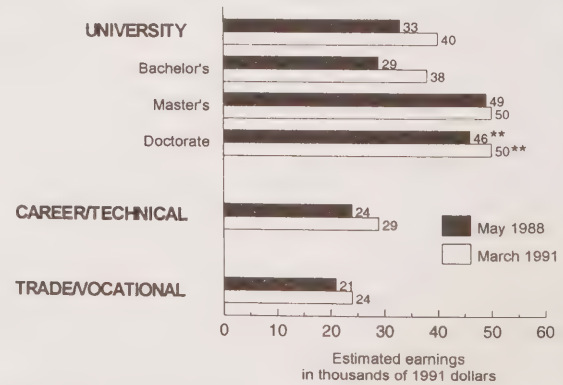
V. How Did The Earnings of Employment Equity Groups Compare?

Because of the small sample size and relatively high data variability, one cannot compare the earnings of the following equity groups and the general population with statistical confidence. Comparisons within employment equity groups should also be cautioned.

a) Aboriginal People Earnings

In 1991, Aboriginal university graduates earned $40,000, 21% higher than in 1988. The largest improvements came at the bachelor's level, where Aboriginal graduates went from a median income

Chart 3-6. Estimated median annual earnings of 1986 aboriginal graduates working full-time in May 1988 and March 1991

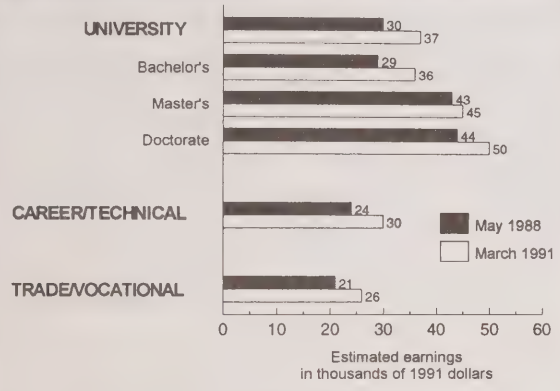


of $29,000 in 1988 to approximately $38,000 in 1991. Aboriginal career/technical graduates made sizeable earnings increases, improving their salaries from $24,000 in 1988 to $29,000 in 1991, a jump of 21%. Trade/vocational graduates of Aboriginal origin, on the other hand, increased their earnings only 14% (Chart 3-6).

b) Visible Minorities

Visible minority bachelor's graduates earned $36,000 in 1991, up 24% from 1988. In the same period, master's graduates increased their pay 5% to

Chart 3-7. Estimated median annual earnings of 1986 visible minority graduates working full-time in May 1988 and March 1991

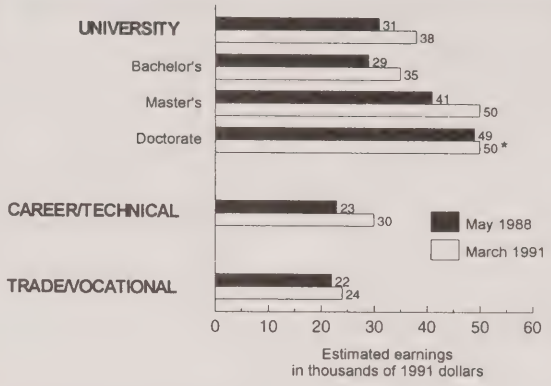


reach $45,000 while visible minority doctorate earnings improved 14% to $50,000. Visible minorities graduates of career/technical programs earned $30,000. At the trade/vocational level, visible minority graduates increased their incomes by 24% to reach $26,000 by 1991 (Chart 3-7).

c) Disabled People

In 1991, disabled bachelor's graduates earned $35,000, 21% more than in 1988. Master's and doctorate graduates both made $50,000 per year in 1991. This implied a 22% earnings improvement for disabled master's graduates but only 2% for doctorate holders. Disabled career/technical graduates earned $30,000 in 1991, 30% more than in 1988. However, earnings growth for disabled trade/vocational graduates stood at only 9%, placing them at $24,000 by 1991(Chart 3-8).

Chart 3-8. Estimated median annual earnings of 1986 disabled graduates working full-time in May 1988 and March 1991



REFERENCES AND NOTES

[1] Wannell, Ted and Caron, Nathalie. **The Gender Earnings Gap Among Recent Post-Secondary Graduates, 1984-92**, Statistics Canada: Analytical Studies Branch, November 1994.

Chapter 4. Education/Job Relationship, Underemployment, Work Experience and Job Satisfaction

by Geoff Bowlby

Introduction

Although many people seek general self-improvement through post-secondary education, perhaps the main incentive for continuing beyond high school is to improve the chances of obtaining a good job. Certainly, most graduates found it desireable to have a job where they could use the skills obtained at school. Graduates also prefered jobs that required their education level.

Focusing on graduates working full-time, this chapter will examine the match between education and work, starting with a look at whether the learned skills were used on the job (education/job relationship). This is followed by an examination of the match between the formal education obtained by the graduates and the level of formal education required for their jobs (underemployment). Finally, job satisfaction and the need for previous work experience are analysed.

Highlights

Education/Job Relationship

Graduates were determined to have a job that was directly related to their education if: a) their education was intended to prepare them for the job; and b) in their job, they used skills learned during their schooling. Most graduates expressed a strong, positive opinion of the importance of the relationship between their education and work. Such graduates were more likely to be in full-time jobs which were directly related to their education.

The majority of all graduates working full-time in 1991 had jobs that were directly related to their education. Between 1988 and 1991, the education/job relationship strengthened at all levels of education except trade/vocational, where graduates were particularly hard-hit by the recession and forced into less-related positions. Looking closer at the levels of education, it was found that graduates from all university and most career/technical fields of study experienced an increase in the education/job relationship. At all levels of study, health science graduates were the most likely to have a directly related job.

Part-time workers were less likely to have directly related jobs in both years of study than full-time workers. While the gender difference was very small for university graduates, at the career/technical and trade/vocational levels, women were more likely than men to have directly related jobs.

Underemployment

Those who had more education than formally required for their jobs were considered underemployed. Considered an undesirable situation by most graduates, there was a very broad decrease in underemployment between 1988 and 1991. Despite this decrease, there was a minimum one in three chance that a graduate would be underemployed in 1991, depending upon the graduate's level of study.

By field of study, it was university engineering & applied science graduates and health science graduates at the career/technical and trade/vocational levels that had the lowest underemployment rates. Graduates working part-time were more likely to be underemployed than their full-time colleagues.

While male university graduates were less likely to be underemployed than female university graduates, the reverse was true at the career/technical and trade/vocational levels. In 1991, male underemployment was unaffected by the existence of dependent children while the underemployment of female graduates was higher.

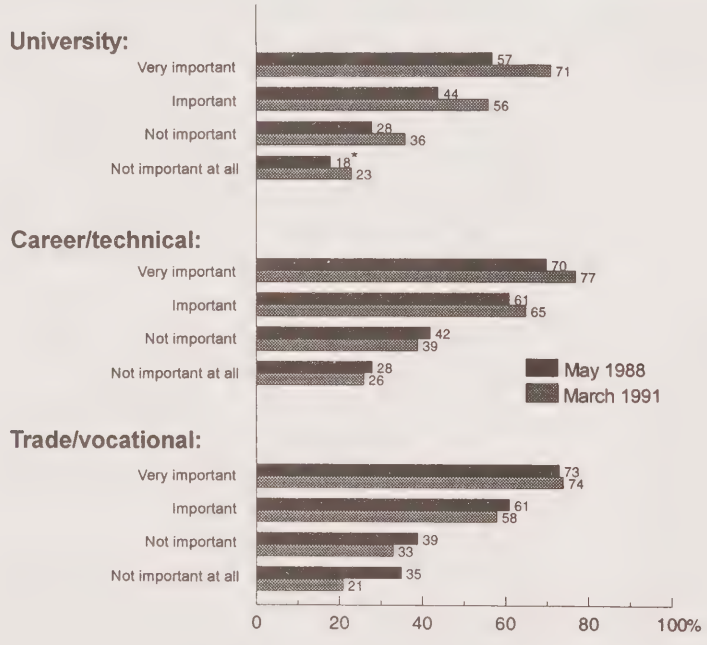
Work Experience

Between 1988 and 1991, the percentage of graduates whose employers felt it was essential that they have previous work experience increased at all levels of education. Doctorate and master's graduates were the most likely to need prior work experience for their jobs.

Job Satisfaction

The overwhelming majority of graduates were either satisfied or very satisfied with their jobs. Those with directly related jobs were the most satisfied at work. Underemployed graduates had the lowest satisfaction rates in both years of study.

Chart 4-1. Percentage of graduates reporting a direct education/job relationship, by importance of relationship in 1991



I. Education/Job Relationship

The 1991 Follow-up of Graduates Survey categorised working graduates into: a) "Directly Related"; b) "Partly Related"; and c) "Unrelated" jobs[1]. Directly related jobs were considered desirable by most graduates. In the pursuit of a directly related job, graduates who had unrelated or partly related jobs in 1988 could change employers and/or jobs or they could stay with their employers and hope that their duties change. It was found that graduates were most likely to have changed employers and jobs in order to improve from unrelated or partly related to directly related jobs.

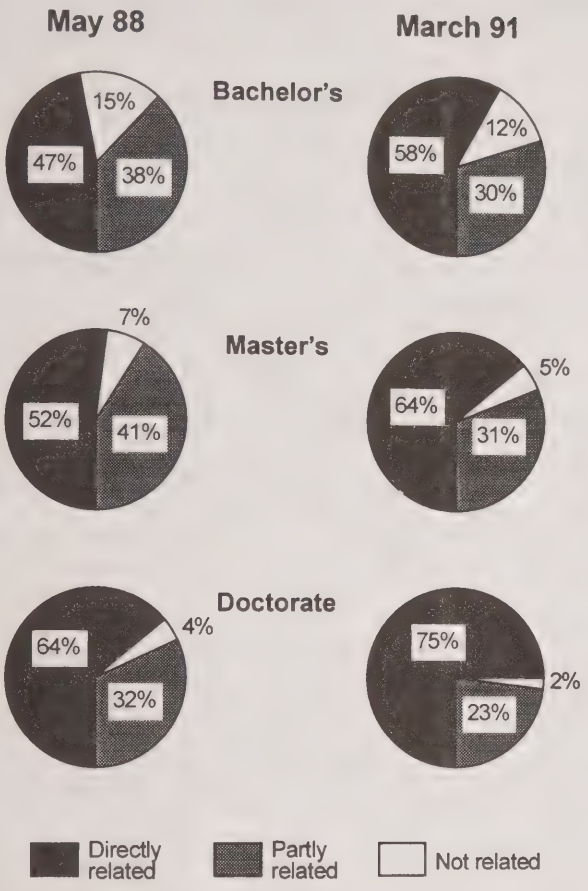
Many factors affected the education/job relationship, including field of study and whether the graduates were employed full or part-time. In the first part to this section, the connection between education/job relationship and opinion of the education/job relationship is examined.

a) What Was the Effect of the Graduates' Opinion of the Importance of the Education/Job Relationship?

In 1988 and 1991, over 85% of graduates felt that it was important or very important that their jobs be related to their field of study. Because they probably strove harder to find a directly related position, graduates from this group were more likely to work at a directly related job than those who felt it to be less significant (Chart 4-1).

At all levels of education, those who considered the education/job relationship to be very important improved their relationship between 1988 and 1991. The percentage of university graduates in directly related jobs improved regardless of the level of importance attached to the relationship. Meanwhile, career/technical and trade/vocational graduates who considered the education/job relationship to be "not important" and "not at all important" were less likely to have a directly related job in 1991 than in

Chart 4-2. Relationship of job to education of 1986 university graduates working full-time in May 1988 and March 1991, by level of study



1988. Trade/vocational graduates who considered a direct education/job relationship to be important were also less likely to have a directly related job.

b) Education/Job Relationship of Graduates Working Full-Time by Level of Study

University Graduate Direct Education/Job Relationship

From 1988 to 1991, there was a strengthening of the education/job relationship across all levels of university education (Chart 4-2). While full-time employment amongst university graduates grew by 6% to roughly 95,000, employment in directly related jobs jumped 33% to 56,000. As a result, a greater percentage of graduates reported a direct education/job relationship. At the same time, fewer had non-related jobs.

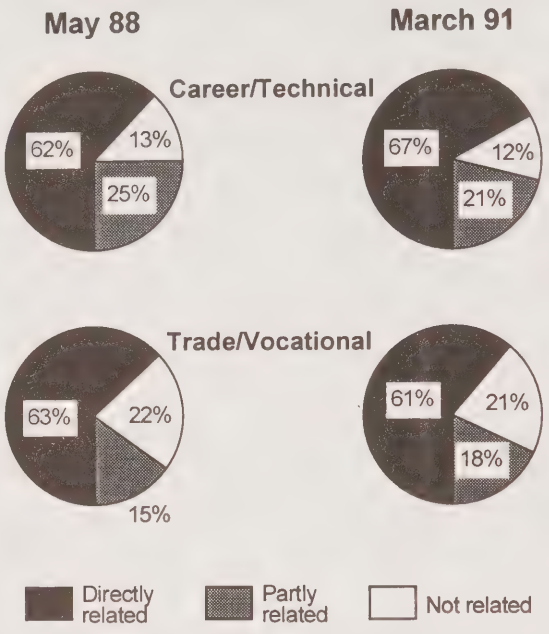
The more university education a graduate had, the greater the education/job relationship. Master's graduates had a high education/job relationship because of the large percentage of master's graduates working in highly-related managerial & administrative occupations. At the doctorate level, the largest proportion of graduates worked as teachers (49%). Five years after graduation, 80% of doctorate graduates in teaching reported a direct education/job relationship.

Career/Technical and Trade/Vocational Direct Education/Job Relationship

Like university graduates, there was an increase in the percentage (from 62% to 67%) of career/technical graduates who reported a direct relationship between education and work during the two periods of study (Chart 4-3). Although the number of career/technical graduates working full-time fell slightly from 1988 (to 49,000 in 1991), the number of career/technical graduates in directly related jobs increased 6% (to 33,000).

Unlike all other groups, trade/vocational graduates actually experienced a decrease in the proportion reporting direct education/job relationships, dropping from 63% to 61%. Instead, they were forced into less-related positions. With a 4% drop in the number of full-time workers, trade/vocational graduates were more affected by the recession than other graduates. Trade/vocational graduates working in directly related jobs in 1988 were more apt than other graduates to have changed employers and when they found new jobs, they were twice as likely as career/technical graduates and three times more likely than university graduates to have changed employers and move to different, unrelated jobs.

Chart 4-3. Relationship of job to education of 1986 career/technical and trade/vocational graduates working full-time in May 1988 and March 1991



Career/Technical Fields of Study

All fields except health sciences had higher percentages of graduates with directly related jobs in 1991 than in 1988 (Chart 4-5). The decline in the health sciences education/job relationship was due to a decrease in education/job relationship of nursing graduates. Because of hospital cut-backs, the number of career/technical graduates working full-time as nurses decreased by 9% between 1988 and 1991, while general career/technical employment dropped 2%. Layoffs and restricted hiring may have forced many graduates qualified as nurses into occupations that were less related to their education. Similarly, career/technical nursing graduates were faced with fewer nursing job prospects because of increased educational standards. Between 1988 and 1991, an increased number of nursing positions required a university degree.

c) Did the Graduates' Choice of Fields of Study Affect the Education/Job Relationship?

University Fields of Study

In 1991, graduates from all university fields of study were more likely than in 1988 to be in jobs that were directly related to their education (Chart 4-4). Graduates from health professions had the highest percentage of directly related jobs in both years of study (71% in 1988 and 74% in 1991). They were followed by engineering & applied science graduates (56% and 70%) and education graduates (66% and 69%). At the other end of the scale, general arts & science (48%), social sciences (47%), and humanities (43%) graduates were the least likely to have work in 1991 that related directly to their schooling.

Chart 4-4. Percentage of 1986 university graduates working full-time reporting a direct education/job relationship in May 1988 and March 1991, by field of study

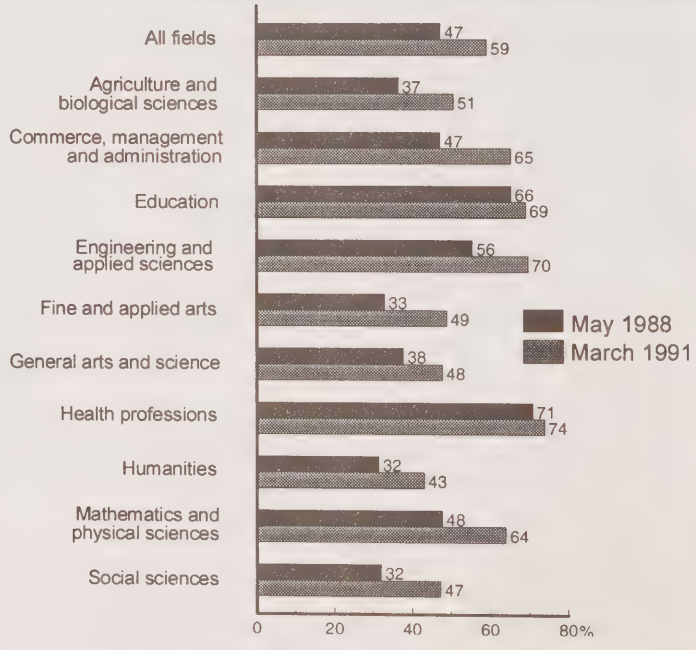


Chart 4-5. Percentage of 1986 career/technical graduates working full-time reporting a direct education/job relationship in May 1988 and March 1991, by field of study

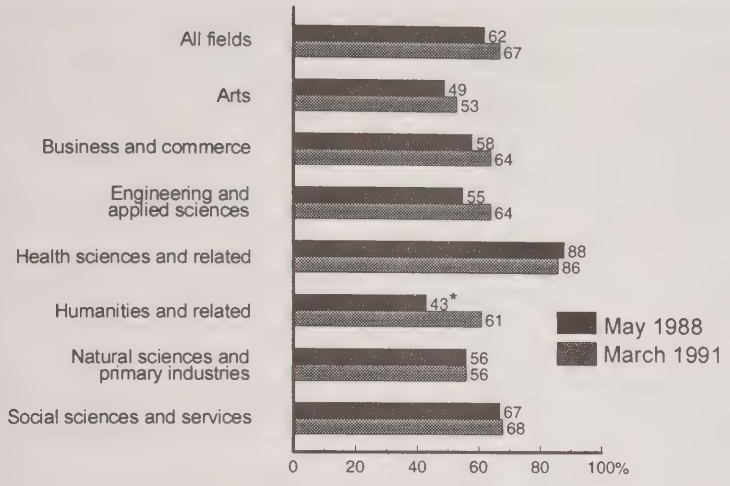
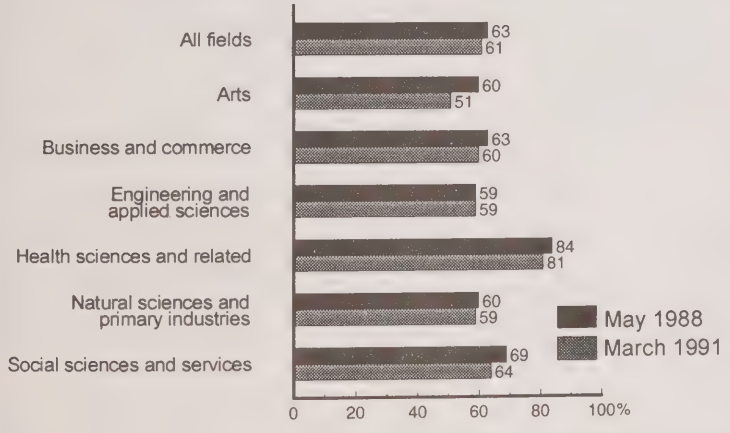


Chart 4-6. Percentage of 1986 trade/vocational graduates working full-time reporting a direct education/job relationship in May 1988 and March 1991, by field of study



Trade/Vocational Fields of Study

Following the general trend at this level, all trade/vocational fields of study experienced a decrease in the education/job relationship (Chart 4-6). Again, health sciences graduates were the most likely to have a direct education/job relationship (84% in 1988 and 81% in 1991), followed by social sciences & services graduates (69% and 64%).

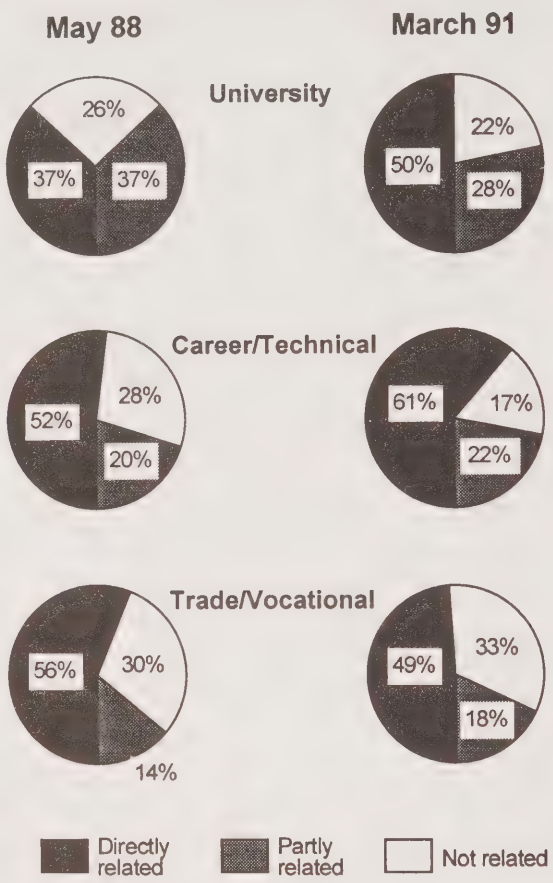
Trade/vocational arts graduates, who were the least likely to have directly related jobs in 1991, experienced the greatest decline in the education/job relationship. This was caused by a decrease (from 28% to 21%) in the percentage of trade/vocational arts graduates who worked as barbers and hairdressers, an occupation with a very strong education/job relationship (84% in 1988 and 93% in 1991).

d) How did the Education/Job Relationship of Graduates Working Part-Time Compare to Those Working Full-Time?

In both 1988 and 1991, graduates working part-time were less likely to work in directly related jobs than full-time employees (Chart 4-7). Part-time work was concentrated in different areas than full-time work. Although graduates working part-time were more likely to work as teachers or medical & health professionals (whose education strongly related to their work), they were far less likely to work in managerial & administrative, and natural sciences, engineering & mathematics (where the education/job relationship was also strong).

In 1991, graduates working part-time in most major occupations were less likely to have a direct education/job relationship than graduates working full-time in those same occupations. Part-time positions may be designed to be of relatively low responsibility and scope, never allowing a strong application of post-secondary education.

Chart 4-7. Relationship of job to education of 1986 graduates working part-time in May 1988 and March 1991



e) Was the Education/Job Relationship Different for Men and Women?

There was little difference between the direct education/job relationship of male and female university graduates. However, in 1988, the education/job relationship of female career/technical graduates (68%) was much higher than that experienced by men at that level (56%). This can be explained by the fact that 27% of all female career/technical graduates came from health sciences, a field where 88% felt that there was direct education/job relationship. By 1991, the proportion of female career/technical graduates reporting a direct relationship increased to 69%, compared to 65% for male graduates.

At the trade/vocational level, more women graduates worked at directly related jobs than men. Between 1988 and 1991, the percentage of men in directly related jobs decreased from 60% to 59% while the corresponding figure for women dropped from 67% to 65%. Again, this can be explained by the relatively large number of female trade/vocational graduates from health and sciences.

II. Underemployment

There are many aspects to underemployment. Underemployment can occur when workers' deem their usual hours on the job to be insufficient. It may also refer to a situation where income, productivity or skill utilisation is unusually low. In this study, underemployment was determined by comparing the highest level of formal education received to the formal education requirements of the job held at the time the respondent was interviewed. Those who had more education than required for the job were classified as underemployed.

Graduates generally consider underemployment undesirable, as underemployed graduates had lower job satisfaction (see next section in this chapter). However, from the employers' perspective, underemployment would seem less of a problem. Employers hire the most highly skilled person available, someone who might have more education than formally required. A company may not be concerned with hiring an "overeducated" individual since an overeducated workforce constitutes a pool of highly skilled labour from which future promotions can be made, thereby reducing hiring costs for more advanced jobs.

In the following section, underemployment is studied by level of education, field of study, sex, dependant children, and employment equity groups. It was found that between 1988 and 1991, there was a broad decrease in underemployment that affected almost all graduate groups. This implied that more graduates worked at jobs that matched their education, despite the recession. Underemployed graduates had a chance to search for a different employer and/or job where the educational requirements

more closely matched their level of attainment. The large majority of graduates who were underemployed in 1988 but had the same education as required for their jobs by 1991 made the switch by changing either employers or jobs, or both.

While underemployment decreased, there was an increase in the percentage of graduates with less education than required for the job. This does not necessarily imply a training problem since graduates may have obtained enough informal training (eg. passive training by colleagues, training programs less than 3 months in duration, etc.) and work experience between 1988 and 1991 to compensate for any lack of formal education.

a) What Was The Underemployment of Graduates by Level of Education?

University Graduate Underemployment

Between 1988 and 1991, the incidence of underemployment decreased at all university levels while there was an increased chance that bachelor's and master's education was less than required (Chart 4-8). Master's graduates reported the greatest incidence of underemployment because of high rates reported by education, engineering & applied science and commerce, management & administration.

By 1991, underemployed bachelor's graduates were less likely to be working in jobs that required a high school education. The greatest percentage of underemployed bachelor's graduates required a college certificate (27%). At the master's level in 1991, 77% of underemployed master's graduates had jobs that only required bachelor's degrees, about the same amount as three years previous.

Career/Technical and Trade/Vocational Graduate Underemployment

Underemployed career/technical and trade/vocational graduates were most likely to work in jobs that required a high school education. The incidence of undereducation for trade/vocational graduates was greater than it was for all others in both 1988 and 1991 (Chart 4-9). It was not surprising that graduates with the lowest level of

Chart 4-8. Underemployment of 1986 university graduates working full-time in May 1988 and March 1991, by level of study

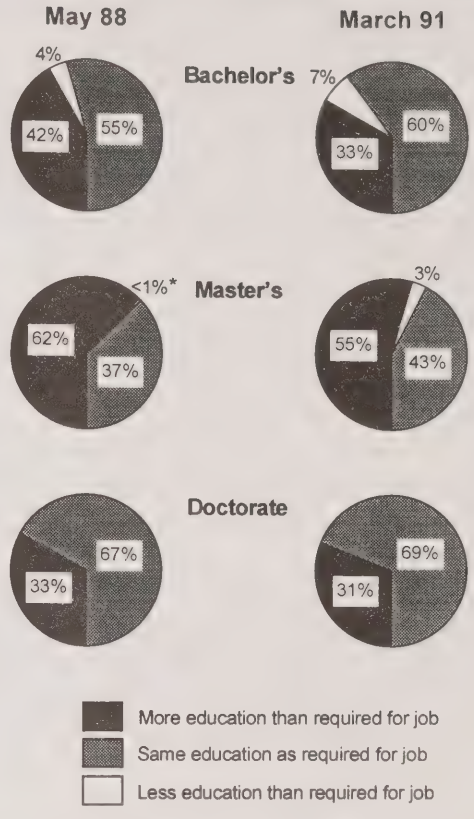
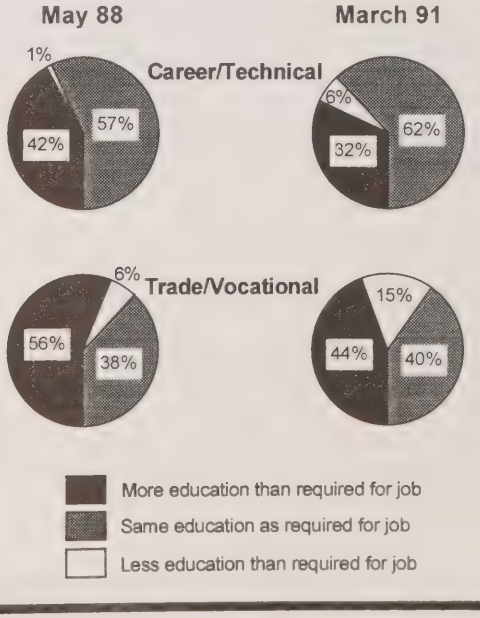


Chart 4-9. Underemployment of 1986 graduates working full-time in May 1988 and March 1991, by level of study



education were most likely to have less education than required for the job.

Trade/vocational graduates were the only graduates to report simultaneous decreases in the direct education/job relationship and underemployment. As the recession hit, many trade/vocational graduates settled for positions that required less of the skills obtained in their training. Meanwhile, compared to other trade/vocational graduates, those who were underemployed in 1988 were more likely to be unemployed or out of the labour force by 1991. This was an important contributing factor to the decline in trade/vocational underemployment.

b) Did the Graduates' Choice of Field of Study Affect the Rate of Underemployment?

University Fields of Study

Engineering & applied science graduates were the least likely to be underemployed in 1988 and 1991 (Chart 4-10). Other fields of study where the underemployment rate was relatively low were mathematics & physical sciences and education. Health profession underemployment would have been much lower if not for the 48% underemployment rate reported by nursing graduates in 1991. Although most nursing jobs still formally required a college background, to advance up the career ladder, nurses were required to have a bachelor's degree. As a result, an increased number of new nurses had university education even though a career/technical diploma was the formal educational requirement.

In both 1988 and 1991, the highest rate of underemployment was experienced by graduates of fine & applied arts programs. These graduates also experienced the greatest decrease in underemployment as more found work as teachers (31% in 1988 and 40% in 1991).

Career/Technical Fields of Study

Between 1988 and 1991, underemployment of career/technical humanities graduates increased, the only field to do so (Chart 4-11). Underemployment

Chart 4-10. Underemployment rates of 1986 university graduates working full-time in May 1988 and March 1991, by field of study

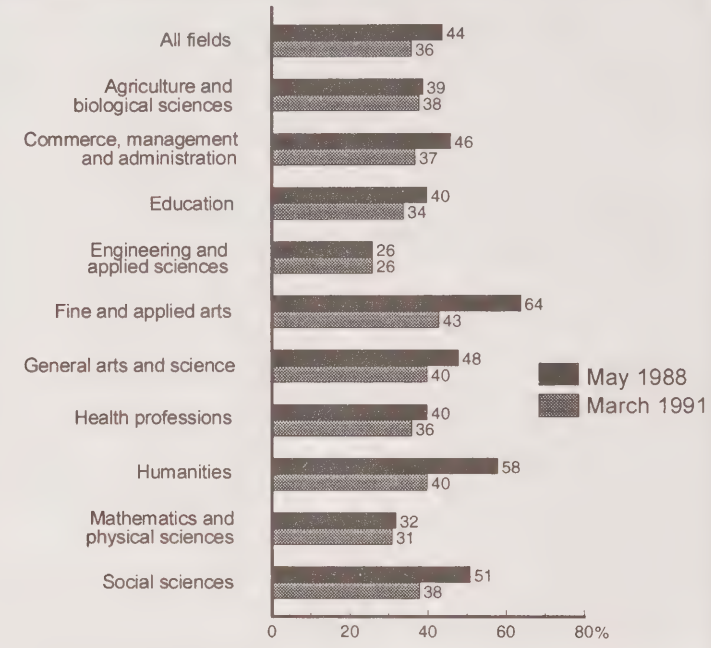


Chart 4-11. Underemployment rates of 1986 career/technical graduates working full-time in May 1988 and March 1991, by field of study

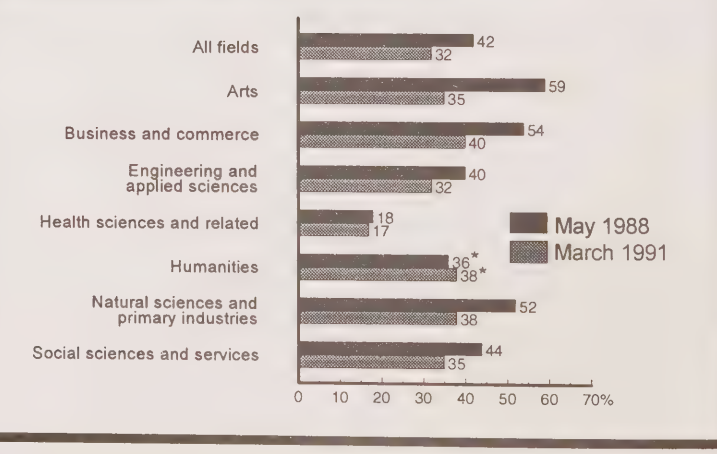
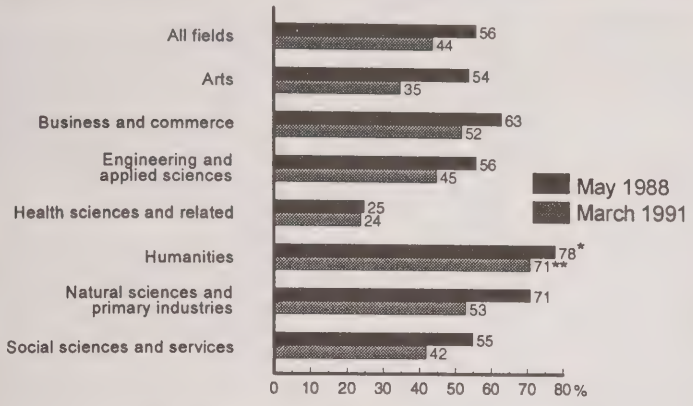


Chart 4-12. Underemployment rates of 1986 trade/vocational graduates working full-time in May 1988 and March 1991, by field of study



of career/technical arts graduates dropped dramatically from the highest of all fields of study to just above the career/technical average. While 46% of career/technical arts graduates were employed in artistic, literary, recreational & related occupations in 1988, this dropped to 38% in 1991. Meanwhile, graduates working in these occupations experienced 49% underemployment in 1988, dropping to only 18%* three years later.

Trade/Vocational Fields of Study

Health science graduates had the lowest rate of underemployment in both 1988 and 1991 (Chart 4-12). On the other side of the scale stood natural sciences & primary industry graduates, with the greatest underemployment rate. Arts graduates had the greatest relative decrease in underemployment, from 54% in 1988 to 35% by 1991.

c) By Level of Study, What Were The Underemployment Rates of Graduates Working Part-Time?

Because the educational requirements of part-time jobs were generally less demanding than full-time jobs, university and career/technical graduates working part-time were more likely to be underemployed than their full-time counterparts (Chart 4-13).

In contrast, trade/vocational graduates working part-time were less likely to be underemployed than those working full-time. In 1991, 28% of trade vocational graduates working part-time were employed in medicine & health, compared to only 8% of full-time graduates. Part-time workers in this occupation reported an underemployment rate of only 16% * in 1991, compared to 21% for full-time workers.

d) Were the Rates of Underemployment Different for Men and Women?

Overall, male university graduates were less likely than women to be underemployed in 1991 (34% vs 37%). In contrast to other university levels, male master's

Chart 4-13. Underemployment of 1986 graduates working part-time in May 1988 and March 1991, by level of study

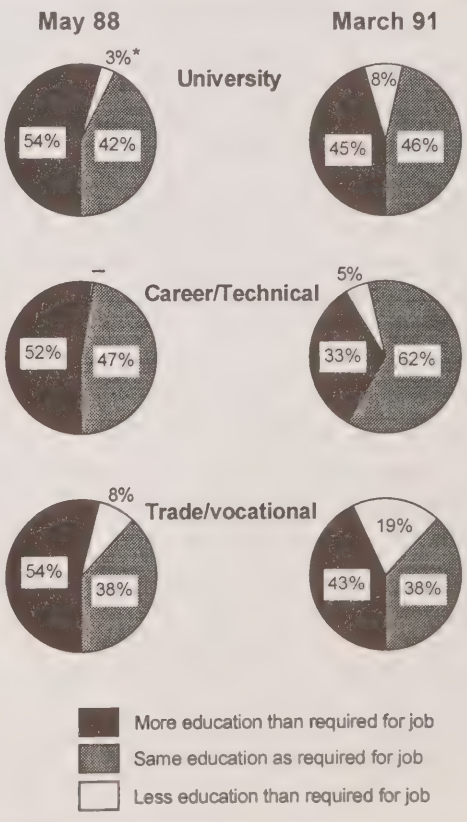
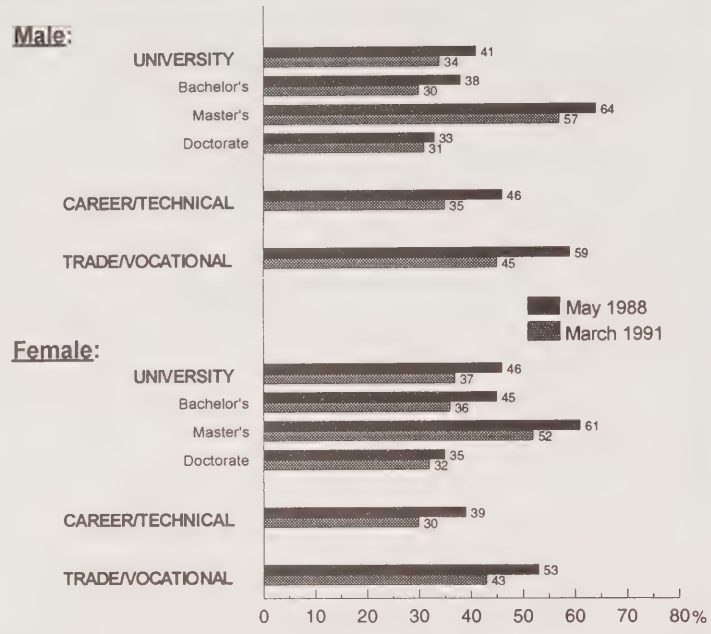


Chart 4-14. Underemployment rates of 1986 graduates working full-time in May 1988 and March 1991, by gender



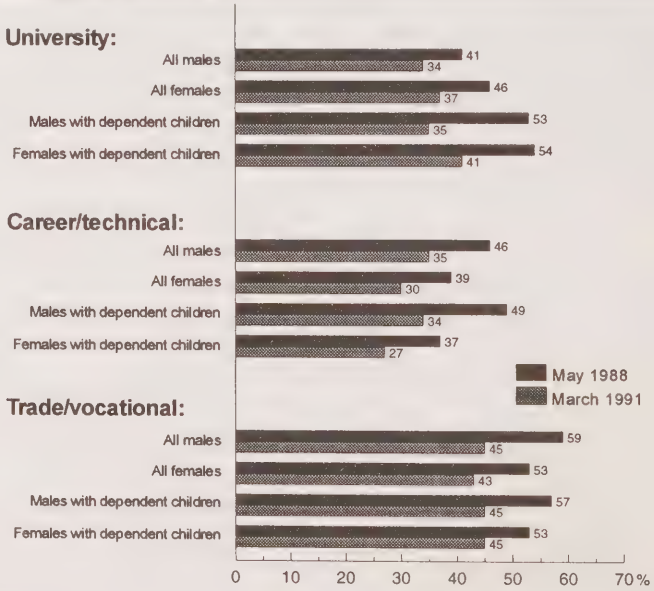
graduates were more likely than female master's graduates to be underemployed in both years. At the master's level in 1991, male graduates of commerce, management & administration, education and engineering & applied science (three of the four most popular fields) had underemployment in excess of 60%. In contrast to this, all of the popular female fields of study (with the exception of education) had relatively low underemployment.

At the career/technical and trade/vocational levels, men were more likely than women to report underemployment (Chart 4-14). Low female career/technical and trade/vocational underemployment was largely due to the large proportion of women graduates working in medicine & health occupations where underemployment was very low in 1991 (14% for career/technical and 19% for trade/vocational). This offset high female underemployment in clerical jobs.

With the exception of natural science & engineering occupations, male career/technical graduates had high underemployment in all major occupations that they dominated (i.e., service (59%), contruction (51%), product fabricating (40%) and sales (40%) occupations). At the trade/vocational level, male graduates working in male-dominated occupations such as processing (67%), service (64%), sales (63%), and construction (50%) had high underemployment.

In 1988, male and female university graduates were more likely to be underemployed if they had dependent children (Chart 4-15). By 1991, the existence of dependent children had little effect on male underemployment. Female university graduates with dependent children were more likely to be underemployed than those without children. The opposite was true for female career/technical graduates, who were more likely to work in medicine & health, if they had dependent children. All other differences

Chart 4-15. Underemployment rates of 1986 graduates with or without dependent children working full-time in May 1988 and March 1991, by gender



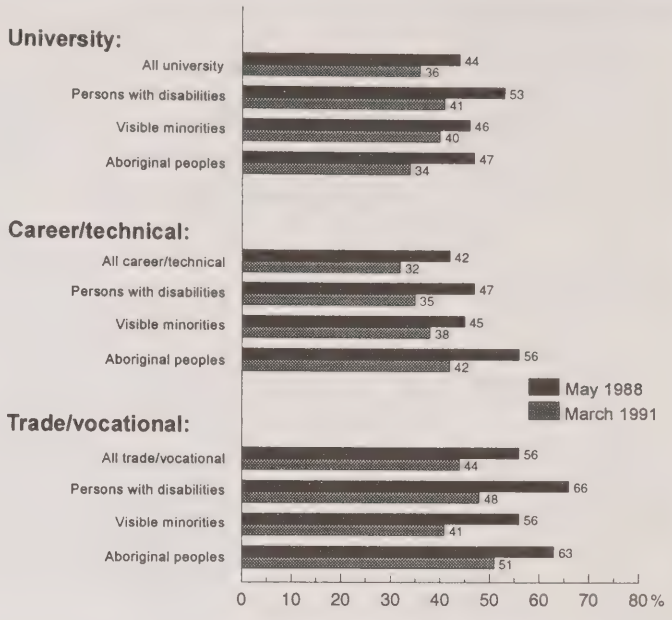
between the underemployment of graduates with and without dependent children were found to be statistically insignificant.

The existence of dependent children placed added pressure on graduates to find work and probably made it more difficult to change jobs. With this added pressure, graduates may not have the time or opportunity to search for a job that requires their education. On the other hand, some graduates with dependent children may have felt more need to seek out higher-paying jobs, forcing them away from underemployment which is characterised by low income opportunities.

e) What was the Rate of Underemployment for Employment Equity Groups?

Underemployment decreased for all employment equity groups between the two years (Chart 4-16). In 1991, visible minority university and career/technical graduates were more likely to be underemployed than other graduates at their respective levels of education. A greater percentage of aboriginal graduates at both the career/technical and trade/vocational levels were underemployed compared to the overall population. Other than those mentioned above, all other differences between employment equity groups and the general population were found to be statistically insignificant in 1991. Comparisons within employment equity groups should also be cautioned.

Chart 4-16. Underemployment rates of 1986 graduates working full-time in May 1988 and March 1991, by employment equity group



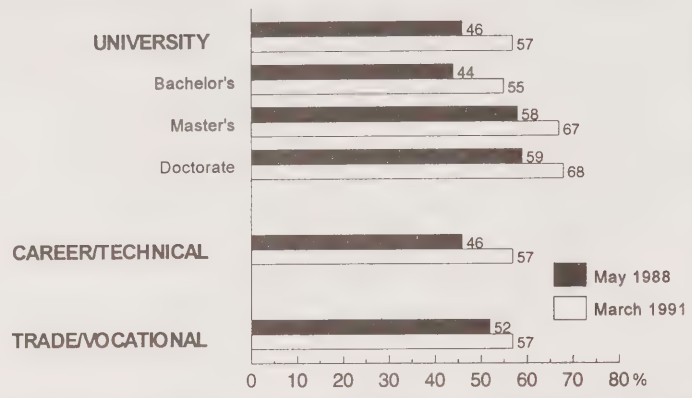
	Persons with disabilities	Visible minorities	Aboriginal peoples
	% of total graduates		
University	2.3	7.2	1.6
Career/technical	2.6	6	2.6
Trade/vocational	4.2	8.1	4.5

III. Work Experience

In the analysis of underemployment and the education/job relationship, the level of education required of graduates was considered. Education is an important screening device used by employers when hiring, as is related work experience. Experienced graduates are assumed to have greater abilities and higher productivity. The 1988 NGS and 1991 FOG surveys asked graduates to indicate if related work experience was essential for the job. By level of education, the following section looks at whether graduates' previous work experience was essential for the job they held in the survey week.

Between 1988 and 1991, at all levels of education there was an increase in the percentage of graduates whose jobs required previous work experience (Chart 4-17). In 1991, graduates were probably more likely to be in positions of higher responsibility where previous work experience was required. In addition, as the labour market weakened, employers had the ability to be more selective in their hiring practices.

Chart 4-17. Percentage of 1986 graduates working full-time in May 1988 and March 1991 whose employer specified that related work experience was essential for the job



In both 1988 and 1991, doctorate and master's graduates were the most likely to be in positions that required previous work experience. Bachelor's graduates were not any more likely than their career/technical and trade/vocational counterparts to need work experience for their jobs.

IV. Job Satisfaction

Job satisfaction is a topic that has received much study. Many academic papers have provided insight into the myriad of job satisfaction determinants such as earnings, potential for promotion, hours of work, working conditions, task variety, co-worker and supervisor interaction, ability to influence decisions and the ability to control work pace[2]. Demographic factors such as age and satisfaction with other aspects of life also affect satisfaction at work[3].

Basically, job satisfaction is determined by whether the graduates' needs and expectations are being met by the work experience. One of those needs is the "knowledge fit"[4], or the match between education and the job, like that measured with the education/job relationship and underemployment.

The 1988 NGS and 1991 FOG surveys found that the vast majority of graduates were satisfied or very satisfied while graduates with greater education were more likely to be very satisfied with their job than those with less education. At the same time, an equal percentage of graduates at all levels of education were either dissatisfied or very dissatisfied (5%).

a) Job Satisfaction by Education/Job Relationship

For all levels of education, the greater the education/job relationship, the more satisfied the graduate was with the job (Chart 4-18). The majority of graduates said that the relationship between their jobs and education was important. As a result, those in directly related jobs were more satisfied.

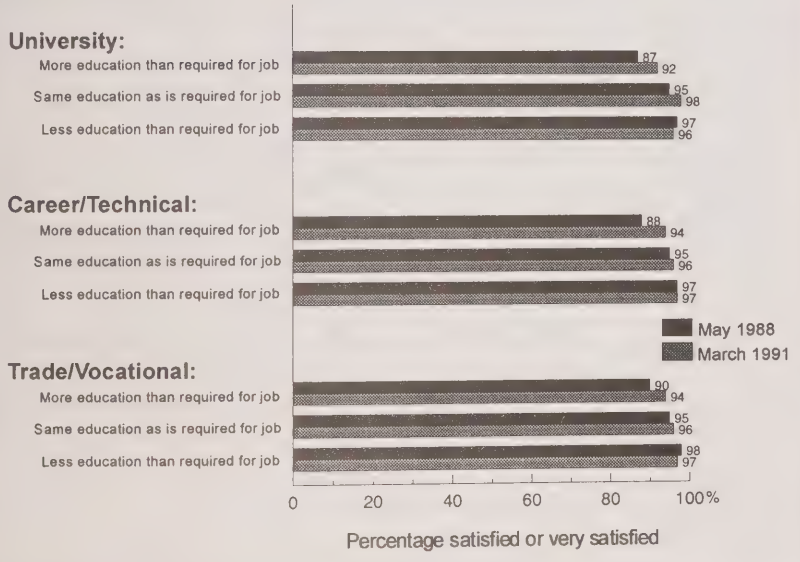
Chart 4-18. Job satisfaction of 1986 graduates working full-time in May 1988 and March 1991, by relationship of job to education

Between 1988 and 1991, the satisfaction rate of graduates in unrelated jobs increased by more than that for other graduates, probably because of a relatively large jump in earnings satisfaction.

b) Job Satisfaction by Underemployment

In both 1988 and 1991, underemployed graduates had lower job satisfaction than other graduates, especially at the university level, possibly because of lower earnings than all other graduates (Chart 4-19). Meanwhile, underemployed graduates experienced the greatest increase in job satisfaction between the two years. Underemployed graduates had the largest increase in the earnings component of job satisfaction.

Chart 4-19. Job satisfaction of 1986 graduates working full-time in May 1988 and March 1991, by underemployment status



REFERENCES AND NOTES

[1] The determination of the education/job relationship is based on the answers to two questions. Respondents were asked, "was the education program you completed in 1986 intended to prepare you for this job?" and "In this job, did you use any of the skills acquired from the educational program you completed in 1986?". Replies of yes/yes to these questions implied a directly related job, no/yes or yes/no implied a partly related job while a no/no response meant the job had no relationship to the graduate's education.

[2] Vroom, Victor H., **Work and Motivation**, (John Wiley & Sons: New York, 1964), p.174

[3] Liou, Kuo-Tsai; Sylvia, Ronald D.; and Brunk, Gregory, "*Non-Work Factors and Job Satisfaction Revisited*" in **Human Relations** (Volume 43, Number One), p.83

[4] Mumford, Enid, "*Job Satisfaction: A Method of Analysis*" in **Personnel Review** (Volume 20, Number Three, 1991) , pg. 15

Chapter 5. Studies after Graduation

by Warren Clark

Introduction

Education serves a variety of societal and economic needs. The Corporate-Higher Education Forum, a group of Canadian business and university leaders promoting understanding between the two groups, noted that the central purpose of education was to produce the kind of people most valued by society. This would entail the development of basic intellectual skills, knowledge, and other skills, habits and attitudes helpful in our everyday life as family members, workers and members of society. It would also include skills of self-expression; cultural appreciation; skills necessary for active and productive work; and the cultivation of moral and spiritual values.[1] The Conference Board of Canada identified life long learning as an important employability skill.[2] The federal government, in discussion and consultation papers, also recognizes the need for a learning culture and investments in learning in Canada.[3]

The 1986 postsecondary graduates also realized the need for continued learning. After graduating, many re-enrolled in programs leading towards a degree, certificate, diploma or license. This chapter will examine the types of education or training graduates received between 1986 and March 1991. It will look at what types of training were taken, who participated, and whether that participation led to labour market success. This chapter will also examine graduates' assessment of their 1986 program in terms of whether they would select the same program if they could do it all over again.

Three out of five university graduates, half of career/technical graduates, and two out of five trade/vocational graduates pursued post-graduation studies. Participation varied depending on where the graduate was in the family life cycle with older, married graduates participating less frequently than younger, single graduates. Women with young children were less likely than those without children to pursue further studies after graduation, but once their children were older their participation in post-graduation studies rebounded to almost the level of women without children.

Completion of post-graduation studies improved the likelihood of finding full-time employment in 1991 for most graduates. Many who completed their studies in 1991 only had limited time to find full-time employment and were therefore less likely to be working in March 1991.

University graduates' assessment of their program changed very little between 1988 and 1991 with about seven out of ten indicating they would choose the same program again. Both career/technical and trade/vocational graduates were less likely to say they would select the same program again, as more indicated they would choose university. The percentage of trade/vocational graduates who would select a college program more than doubled between 1988 and 1991.

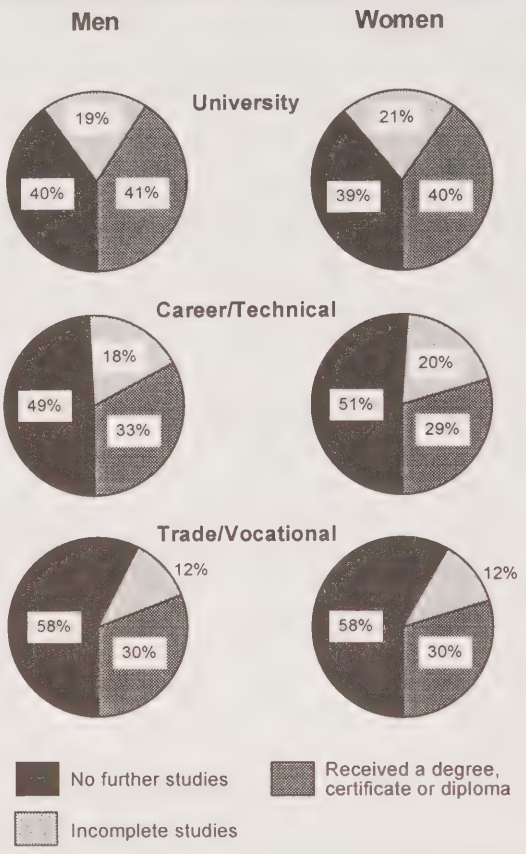
Note to readers: Definitions

Graduates can be split into three main groups based on post-graduation study experiences:

1. those who did not take any education program, courses or training after they graduated in 1986. This group is identified as "No further studies" in the charts and tables.
2. those who did pursue additional studies after graduation but as of March 1991 had not received a degree, certificate or diploma signifying that they completed those studies. This group is identified as "Incomplete" or "Incomplete studies" in the text, charts and tables.
3. those who pursued additional studies and have received a degree, certificate or diploma to signify successful completion of that program. This group is identified as "Received a degree, certificate or diploma". This group could be further sub-divided into those who have continued with additional studies and those who have not continued, (i.e.,"completers").

The combined groups of "incomplete studies" and "received a degree, certificate or diploma" are called graduates who have "pursued further studies" throughout this chapter.

Chart 5-1. How many 1986 graduates pursued further studies between graduation and March 1991



Level of university degree obtained in 1986 and gender		Outcome of studies after graduation		
		No further studies	Incomplete studies	Received a degree, certificate or diploma
		%		
Bachelor's	Total	37	20	43
	Men	37	19	44
	Women	37	21	42
Master's	Total	55	22	23
	Men	54	22	24
	Women	56	22	22
Doctorate	Total	80	6	14
	Men	81	6	12
	Women	77	6	17

I. How many pursued additional studies?

During the five years after graduation many trade/vocational, career/technical and university graduates returned to school to develop their skills, to improve their knowledge, to enhance their chances in a highly competitive labour market or for self-fulfilment. By March 1991, roughly five years after graduating, 41% of 1986 university graduates had received another degree, certificate, diploma or license. Another 20% had pursued but not completed further studies (Chart 5-1).[4] About three of ten career/technical college and trade/vocational graduates indicated they had completed another program by March 1991. Another 19% of career/technical and 11% of trade/vocational graduates had continued their studies but had not completed them by March 1991. There was very little difference between the sexes.

The 1986 university graduates were only slightly more likely than the 1982 graduates to complete post-graduation studies during the five years after graduation. Career/technical and trade/vocational graduates were much more likely to have receieved a degree, certificate or diploma (Chart 5-2).

The possibility of long term employment may have affected graduates decisions to continue studies after graduation. The 1982 graduates entered the labour market at the end of a recession and their unemployment rates dropped over the following five years. In contrast, 1986 graduates faced a relatively good labour market that worsened in the

Chart 5-2. 1986 graduates were more likely to receive additional degrees, certificates or diplomas after graduation than 1982 graduates

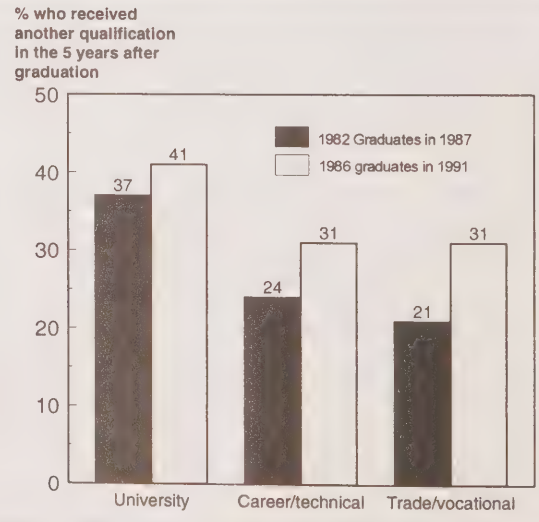
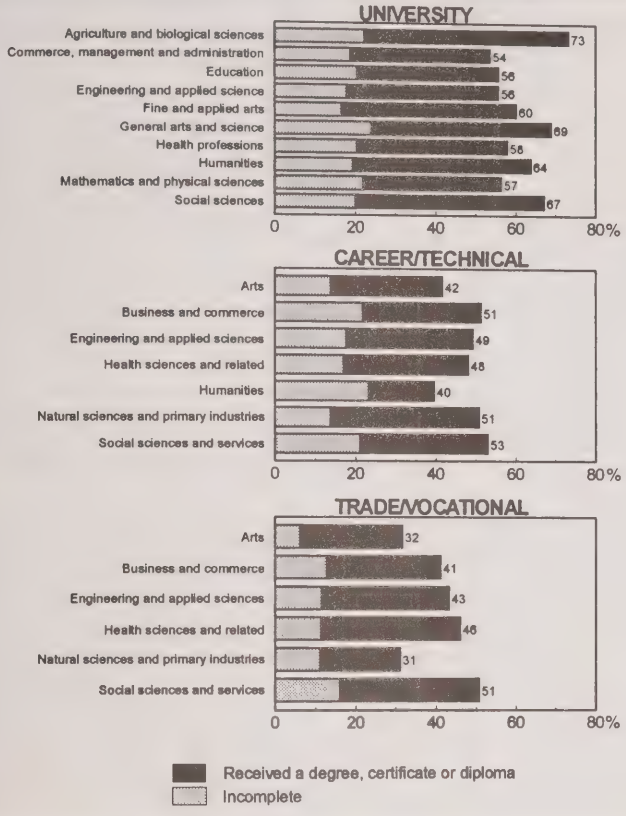


Chart 5-3. Percentage of graduates who pursued further studies after graduation, by field of study



Field of study	Level of university degree obtained in 1986					
	Bachelor's		Master's		Doctorate	
	Incomplete studies	Received a degree, certificate or diploma	Incomplete studies	Received a degree, certificate or diploma	Incomplete studies	Received a degree, certificate or diploma
	%					
Total	20	43	22	23	6	14
Agriculture and biological sciences	21	54	36	30	10*	13
Commerce, management and administration	20	38	12	19	--	16*
Education	21	37	18	27	4**	14
Engineering and applied science	18	40	20	24	5	12
Fine and applied arts	16	45	20*	22*	--	-
General arts and science	24	47	31	25	--	-
Health professions	21	39	19	24	9	17
Humanities	18	48	28	23	7*	11*
Mathematics and physical sciences	21	36	33	26	6	8
Social sciences	20	50	27	22	5	19

early nineties. Unemployment rates for 1986 trade/vocational and career/technical graduates increased between May 1988 and March 1991. This may have encouraged more trade/vocational and career/technical to return to school to upgrade their skills. The unemployment situation for university graduates improved between 1988 and 1991 and therefore they did not experience the large increase in graduates returning to school.

Outcome of studies

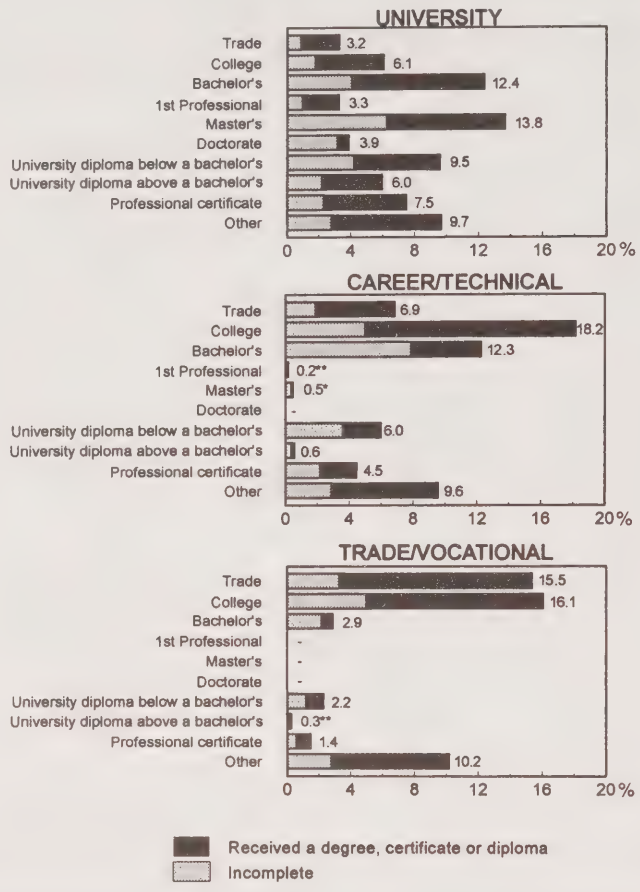
About 5% of all graduates who had started a program withdrew before completing it. Other 1986 graduates who completed additional training after graduation decided to pursue even more. Seven percent of 1986 university graduates who had completed a program after graduation continued to another. This compared with 5% of career/technical graduates and 3% of trade/vocational graduates. It would appear that life long learning is stronger for those with more education.

II. Graduates from which fields continued their studies after graduation?

At the bachelor's level, the 1986 graduates from commerce, management and administration; education; engineering and applied sciences; health professions; and mathematics and physical sciences, were the least likely to pursue further studies after graduation. Generally, graduates from university programs with high unemployment rates in 1988, were more likely to pursue further studies than the programs with low unemployment rates (Chart 5-3).

Agriculture and biological science university graduates were the most likely to continue their education after graduation while those graduates from business programs were least likely.

Chart 5-4. What did they take?



Degree, certificate or diploma pursued after graduation	Level of university degree obtained in 1986					
	Bachelor's		Master's		Doctorate	
	Incomplete studies	Received a degree, certificate or diploma	Incomplete studies	Received a degree, certificate or diploma	Incomplete studies	Received a degree, certificate or diploma
	%					
Trade	1	3	1	1	--	--
College	2	5	1	2	1*	1*
Bachelor's	4	9	1	2	--	1*
First professional	1	2	1	1	--	1*
Master's	7	8	3	3	1*	1*
Doctorate	2	0	12	4	2	1
Undergraduate diploma below bachelor's	4	6	2	3	1*	1*
Undergraduate diploma above bachelor's	2	4	1	2	--	1*
Professional certificate	2	5	2	4	1*	3
Other	3	7	3	5	2	5

Over half of the 1986 career/technical graduates from social sciences and services, business and commerce, and natural sciences and primary industries pursued further studies after graduation. Humanities and arts graduates were the least likely to continue studying (40% and 42% respectively).

Social science and services and health science trade/vocational graduates were the most likely to pursue further studies after graduation. Graduates in the arts and natural sciences and primary industries fields were the least likely to pursue further studies after graduation (less than one in three).

III. What did they take?

University programs have a natural progression of studies from bachelor's to master's to doctoral programs each with progressively more specialization. Career/technical and trade/vocational programs do not have a natural path for continuing studies at higher skill levels yet many did pursue additional studies after graduating.

Bachelor's

The 1986 bachelor's degree recipients were most likely to pursue a master's degree (15%) after graduation with 8% having received a master's by March 1991 (Chart 5-4). About a quarter of 1986 bachelor's graduates who received a master's degree after graduation went on to study at the Ph.D. level. About 14% of the 1986 bachelor's graduates chose to pursue a second bachelor's degree with 9% obtaining it by March 1991. The most frequently selected second bachelor's degrees were Bachelor's of Education, or a bachelor's degree in business or commerce. Only 7% of bachelor's graduates entered a community college after graduating. Two percent of bachelor's graduates had directly entered a doctorate program by March 1991.

Table 5-1. Percentage of 1986 bachelor's graduates who pursued a second bachelor's or a master's degree after graduation, by field of study

Field of study	Pursued a second bachelor's degree	Pursued a master's degree
Total	14%	15%
Agriculture and biological sciences	15	27
Commerce, management and administration	12	7
Education	12	10
Engineering and applied science	8	23
Fine and applied arts	15	17
General arts and science	16	20
Health professions	10	10
Humanities	19	18
Mathematics and physical sciences	11	17
Social sciences	17	17

Of those 1986 bachelor's graduates pursuing master's degrees most did it in a field closely related to their bachelor's degree (i.e., humanities bachelor's graduates pursue master's degrees in the humanities, business bachelor's in a business master's program, etc.). Among the engineering and applied science graduates, however, a master's program in engineering was selected by 11%. About seven percent of these engineering graduates pursued a master's degree in commerce, management and business administration, the largest second choice of field of study.

Graduates from humanities and social sciences were the most likely to pursue a second bachelor's degree (19% and 17% respectively) (Table 5-1). In contrast, graduates from engineering and applied science and health professions were least likely (8% and 10% respectively).

Agriculture and biological science graduates were most likely to seek a master's degree (27%) or a first professional degree (11%). Many of these graduates entered the health professions with 15% pursuing a degree in these fields. By March 1991, 9% had already received their master's degree in agriculture and biological science and another 4% were still working towards it.

Only 7% of bachelor's graduates in business went on to the master's level. For these graduates the most common choice of further studies was professional certification or a license in accounting or management (15%).

> ***Note to readers: Other studies***
>
> Respondents frequently identified education or training that was not part of a regular trade/vocational, college or university program leading to a degree, certificate, diploma or licence. These were classified as "other studies". Other studies could include short computer training courses, language training, management seminars, general interest courses such as music appreciation or workshops to develop particular job skills, etc..

Master's degrees were also less popular with graduates from education and the health professions. Only 10% of 1986 graduates in these fields had pursued them. Graduates from both of these fields most frequently pursued university certificates or diplomas below the bachelor's level, 15% and 14% respectively.

Master's

Sixteen percent of master's graduates had entered doctoral studies and 4% had successfully completed their doctorate by March 1991. The percentage of master's graduates to continue on to doctoral studies varied substantially by field from 39% for mathematics and physical sciences, to 2% for business graduates (Table 5-2). "Other studies" (see note to readers above) was popular with master's graduates and was selected by 8% of them.

Table 5-2. Percentage of 1986 master's graduates who pursued a doctorate after graduation, by field of study

Field of study	Pursued a doctorate
Total	16%
Agriculture and biological sciences	35
Commerce, management and administration	2*
Education	8
Engineering and applied science	20
Fine and applied arts	14*
General arts and science	32
Health professions	15
Humanities	22
Mathematics and physical sciences	39
Social sciences	20

Doctorates

Twenty percent of 1986 doctorates pursued further studies after graduation with most pursuing other studies or professional certification.

Career/technical

Career/technical graduates most frequently sought a second college diploma (18%) after graduation. Thirteen percent received a second diploma by March 1991. Twelve percent went on to study towards a bachelor's degree. Only 4% had obtained a bachelor's degree by March 1991. Those college graduates who continued to university most frequently did so in a field closely related to their college field of study.

Table 5-3. Percentage of 1986 career/technical college graduates who pursued a second college certificate or diploma or a bachelor's degree after graduation, by field of study

Field of study	Pursued a second college certificate or diploma	Pursued a bachelor's degree
Total	18%	12%
Arts	21	11
Business and commerce	17	10
Engineering and applied sciences	17	12
Health sciences	19	14
Humanities	8	15
Natural sciences and primary industries	20	11
Social sciences and services	19	16

Humanities graduates were least likely to pursue a second college diploma but were among the most likely college graduates to pursue a bachelor's degree (15%) (Table 5-3).

Trade/vocational

After graduation, trade/vocational graduates most frequently pursued college studies (16%) or a second trade/vocational diploma or certificate (15%) after graduating in 1986 (Chart 5-4). Ten percent pursued other studies after graduation. Social science and services and health science graduates were the most likely to pursue college studies (Table 5-4). Twenty-five percent of health science graduates went on to college with 18% receiving a college level diploma or certificate. Another 13% of health science graduates pursued further studies at the trade/vocational level. A second trade/vocational program was most popular with trade/vocational graduates from engineering applied sciences. About 19% pursued further trade/vocational studies while 16% went on to college studies.

Table 5-4. Percent of 1986 trade/vocational graduates pursuing college or a second trade/vocational certificate or diploma, March 1991

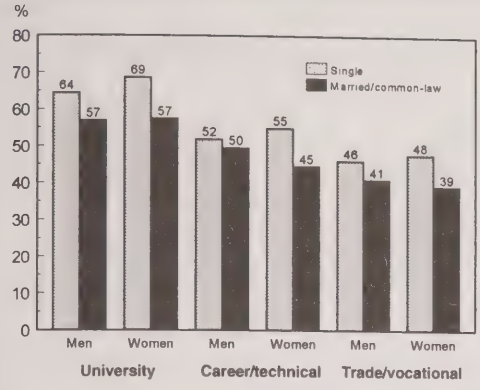
Field of study	Pursued a second trade/vocation certificate or diploma	Pursued a college certificate or diploma
Total	15%	16%
Arts	12	7
Business and commerce	13	15
Engineering and applied sciences	19	16
Health sciences	13	25
Natural sciences and primary industries	12	11
Social sciences and services	13	22

IV. Who pursued further studies?

The age of graduates, the presence of children, marital status, and previous work experience all had an impact on whether graduates pursued additional studies after graduation. Both men and women had difficulty juggling family life, work and the need to upgrade skills and obtain additional education. Where they were in their family life cycle had a great impact on whether they pursued further studies after graduation, what they pursued and whether they pursued them through full-time or part-time studies. Young, unmarried graduates of either sex who didn't have children were much more likely to pursue further studies than older, married graduates with children. Younger university graduates tended to pursue longer programs on a full-time basis, whereas older graduates pursued shorter programs on a part-time basis. The exceptions to these general rules will be described below.

Single graduates were always more likely to go on

Chart 5-5. Who pursued further studies, by marital status



Marital status	University graduates		
	Bachelor's	Master's	Doctorate
	%		
Single	68	53	26
Married/common-law	60	42	18

to further studies than married graduates (Chart 5-5). Men with children were less likely to pursue further studies after graduation than men without children. The care of young children also constrained women from furthering their education. Unless children were young (under age 5), children had little affect on whether women continued their education or not (Chart 5-6). Older graduates were almost always less likely to pursue further studies than younger graduates (Chart 5-7). Those 1986 graduates with less work experience were less likely to pursue further studies (career/technical studies were an exception where participation did not change with previous work experience).

Bachelor's degrees

Men with older children pursued shorter programs after graduation such as university certificates or diplomas than men with young children or no children at all. Bachelor's and master's degrees were less popular among men with children than men without children. This probably reflects mid-career training for older male graduates who cannot devote the time or resources to purse a degree. Short university diploma programs offer them this opportunity.

Female participation in post-graduation studies decreased sharply when they had children under age 5. However, women with older children pursued post-graduation studies almost as frequently as women without children. The post-graduation studies of women with older children increased not only in shorter programs, as it did for men, but also for bachelor's and master's programs.

Age had an impact on post-graduation educational activity. For both men and women, the probability of pursuing additional studies after graduation declined with age. Older graduates with bachelor's degrees were more likely to pursue a university diploma below a bachelor's degree than younger graduates (14% vs 5%). Men under age 22 at graduation were more likely to pursue a second bachelor's degree (20%) than male bachelor's graduates over age 22 (11%).

Master's degrees

Female post-graduation participation in further studies decreased while they cared for children under age 5 and then rebounded when children were older. Doctoral degrees and other studies were equally popular for women with older children. Male participation decreased with the presence of children regardless of their age. Older men and women both participated less often in post-graduation programs.

Career/technical

Male career/technical graduates' likelihood of continuing their studies after graduation did not change very much when children were present in their family. The difference in participation by age was also less dramatic than at the university level. Fifty-four percent of men who graduated at age 21 or less pursued additional education compared with 43% of men age 30 or over. Young men were more likely to pursue a bachelor's degree than older men age 30 or over (16% vs 6%).

Female career/technical graduates exhibited similar behaviour to female university graduates. Those with children under age 5 showed a large decrease in participation in post-graduation studies (from 52% to 36%). Those with older children were just

Chart 5-6. The impact of dependent children on the percentage of 1986 graduates who pursued further studies

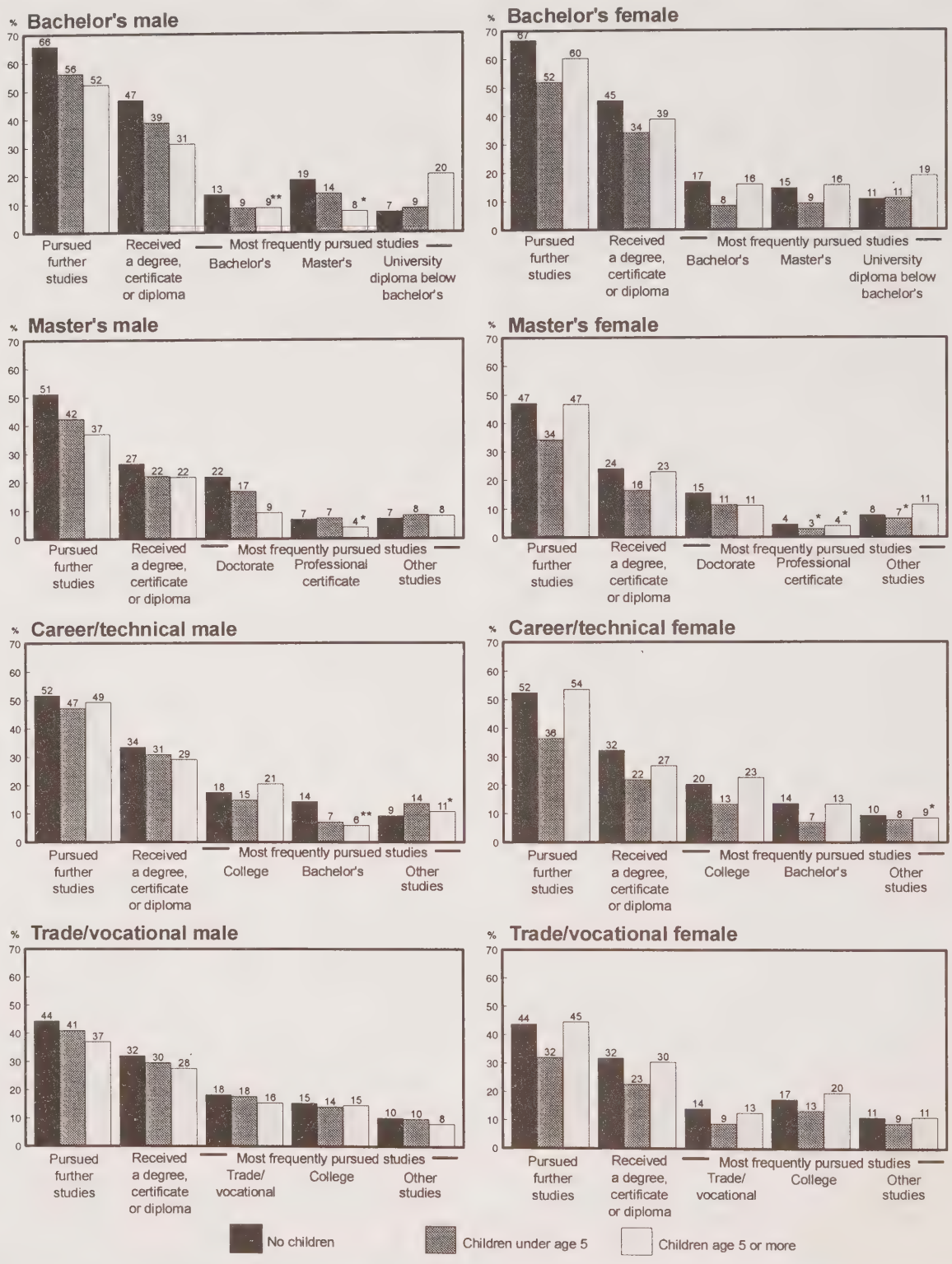
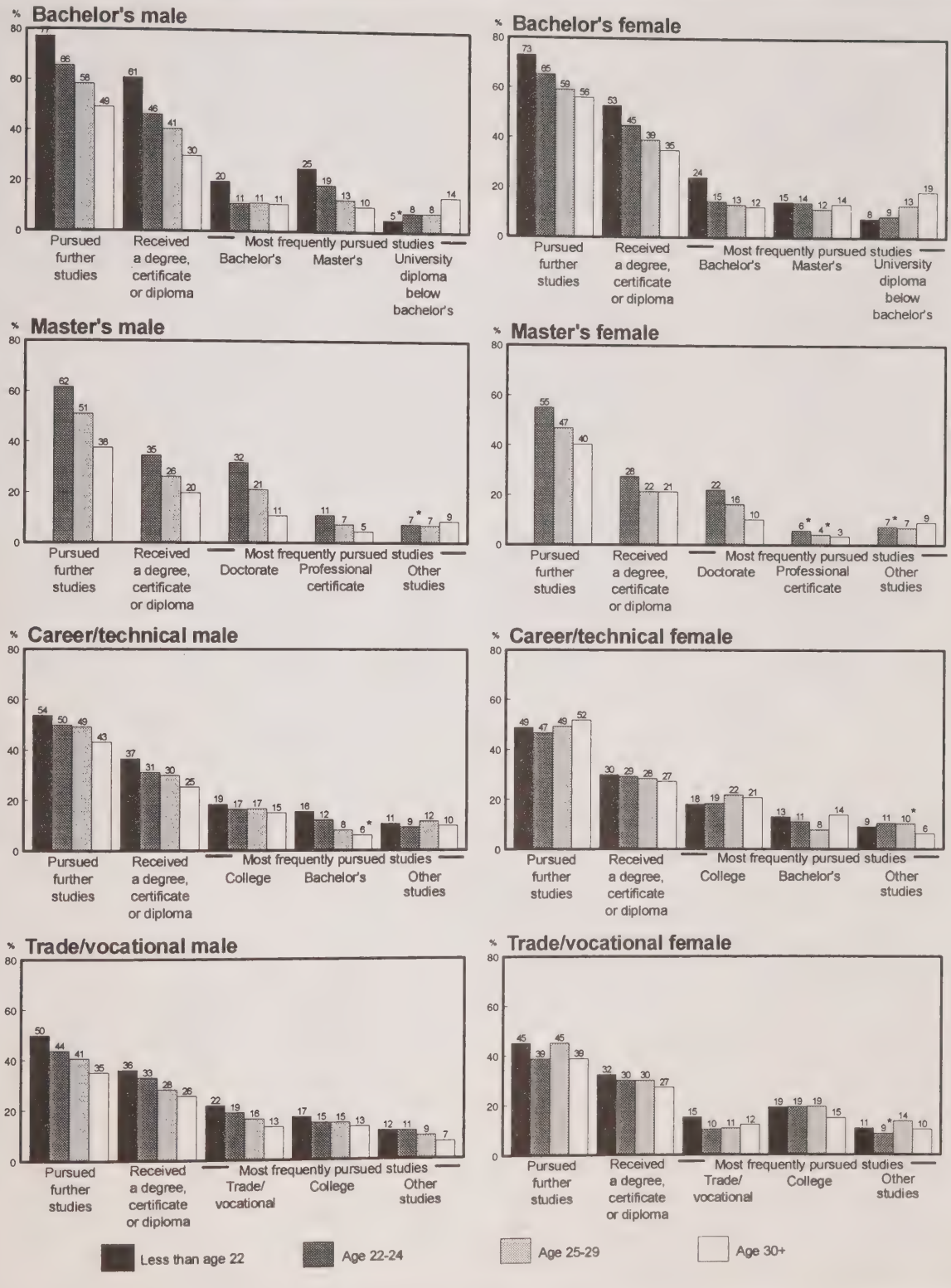


Chart 5-7. The impact of the age of 1986 graduates on the percentage who pursued further studies



as likely to pursue further studies as women with no children. Unlike men, the decision of female career/technical graduates to continue their studies was unaffected by age (49% for women age 22 or less pursed further studies vs 52% for women age 30 or over). Both men and women were more likely to pursue a second college diploma if they had older children than if they had younger children or no children at all.

Trade/vocational

Participation in post-graduation educational activity declined marginally for men with children. Male participation also declined with age; from 50% for men under age 22 at graduation to 35% for men over age 30.

Participation of women with children followed patterns observed for both university and career/technical graduates, falling for those with children under age 5 and rebounding to the level of women with no children when their children were older. Most women with children under age 5 were below age 25 at graduation. They participated in post-graduation studies much less frequently than women of the same age who had no children. Participation in post-graduation education activities showed only small variations with the age of women.

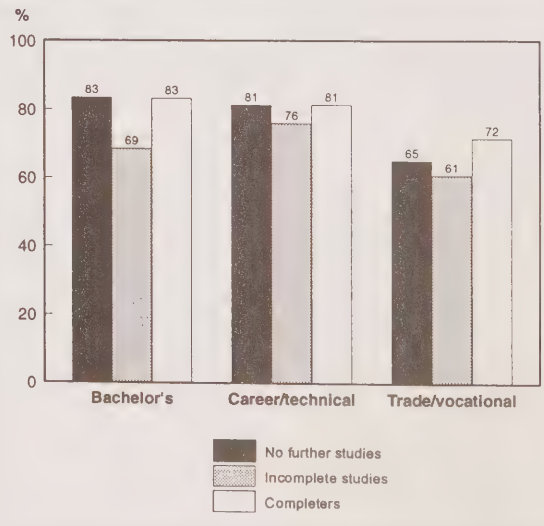
V. Did post-graduation studies improve labour market outcomes?

Education, previous work experience, talent, individual initiative, time of entry into the labour force and demand for labour are some of the factors that contribute to success in the labour market after graduation. During the mid to late 1980s, Canada experienced a buoyant labour market with many jobs created, especially in central Canada. By the early 1990s, recession had set in and employment declined. In general, 1986 graduates who had not yet completed their post-graduation studies were least likely to be working full-time in March 1991 (Chart 5-8). Those who completed post-graduation studies, with the exception of those who completed in 1991, were more likely to be working full-time than those who did not pursue further studies. The 1991 completers were less likely due to the limited time they had to find full-time employment before March 1991.

There is no doubt that post-graduation studies provided graduates with additional skills and attitudes that were valued by employers. In some cases, however, those who entered directly into the labour market after graduation were more likely to be working full-time than those who completed additional studies because of the recession in the early 1990s and because they had limited time to find full-time employment before the March 1991 reference date. Bachelor's graduates who received a master's degree or a second bachelor's, master's graduates who received a doctorate, career/technical graduates who received a second college diploma or a bachelor's degree, were more likely to find full-time employment than graduates who entered the labour market soon after graduation if they received their qualification before 1991.

Trade/vocational graduates had the lowest percentage of graduates working full-time in 1991 (66%). Post-graduation studies had a beneficial effect on full-time employment. Seventy-two percent of 1986 trade/vocational graduates who completed their studies (usually a second trade/vocational or college diploma or certificate) by 1991 were working full-time.

Chart 5-8. Percent of graduates working full-time, by further studies after graduation, March 1991



VI. Retrospective Choice of Program

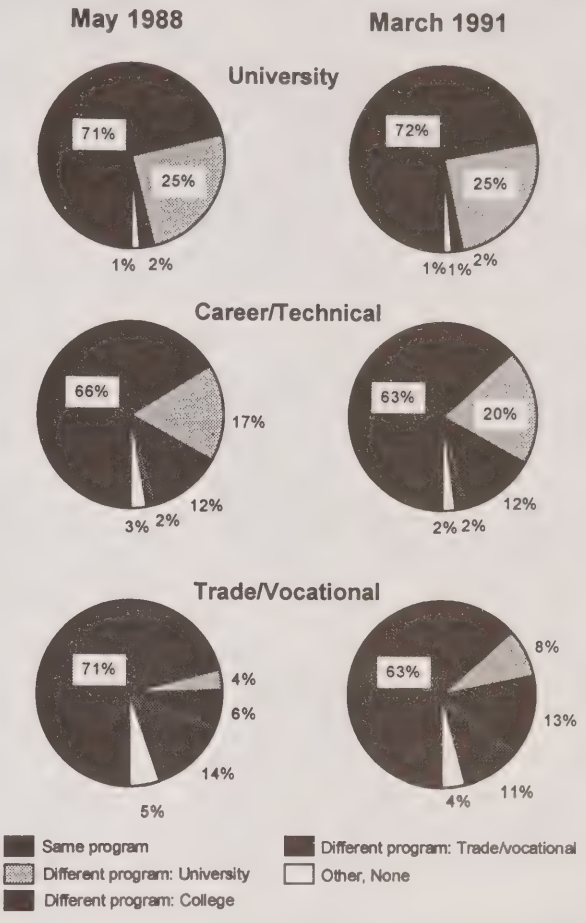
Graduates assessed their program of study by indicating if they would return to the same program if they could choose again. After five years in the labour market, graduates may place a different value on their education than they did soon after graduation. Labour market experiences may induce many to reassess their education. Chart 5-9 shows that university graduates' assessment of their program changed very little between 1988 and 1991. In contrast both career/technical and trade/vocational graduates were more likely to select a university program in 1991 than they were in 1988. This is similar to the pattern observed for 1982 graduates. The percentage of trade/vocational graduates who would select a college program more than doubled between 1988 and 1991 from 6% to 13%. This data indicates that the longer an individual has been in the labour market, the higher the level of education they would choose to pursue if they could start over again.

Field of study

The percentage of 1986 university graduates who would select the same program again, increased marginally in all fields of study except engineering and applied science where there was a marginal decrease (Chart 5-10). At the career/technical and trade/vocational levels, all fields except career/technical engineering and applied science, indicated they were less likely to select the same field of study again in 1991 than they were in 1988. At 72%, arts graduates led career/technical graduates in the percentage who would select the same field of study over again in 1988. By 1991, only 63% felt the same, just below the average for career/technical graduates. The reason for this drop may in part be due to difficulties arts graduates experienced in the labour market. In March 1991 they had the second highest career/technical unemployment rate at 11% compared with 8% for all career/technical graduates. During 1990 over one fifth of them were unemployed at one time or another, the highest among career/technical graduates. Yet those who were employed in both 1988 and 1991 in artistic, literary, recreational and related occupations were less likely to select the same program in 1991.

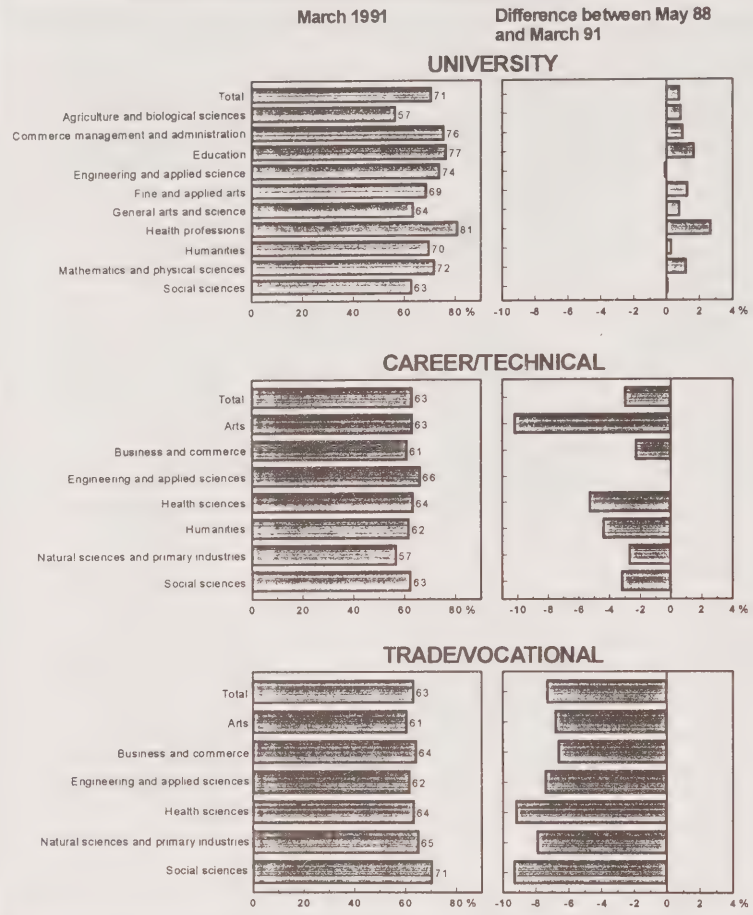
Compared to career/technical and university

Chart 5-9. Retrospective choice of education program



Level of university degree obtained in 1986 and reference date		Retrospective choice of education program			
		Same program	Different program		
			University	College	Trade/ vocational
		%			
Bachelor's	May 1988	70	26	2	1
	March 1991	71	26	2	1
Master's	May 1988	81	16	0	0
	March 1991	82	17	0	0
Doctorate	May 1988	81	17	0	0
	March 1991	81	18	0	-

Chart 5-10. Percent who would select the same program in retrospect, by field of study



Major field of study	Level of university degree obtained in 1986					
	Bachelor's		Master's		Doctorate	
	% who would select the same program in retrospect	Difference between May 88 and March 91	% who would select the same program in retrospect	Difference between May 88 and March 91	% who would select the same program in retrospect	Difference between May 88 and March 91
	%					
Total	71	1	82	0	81	0
Agriculture and biological sciences	57	1	76	-3	80	-4
Commerce, management and administration	76	1	89	-1	88	12
Education	76	2	82	1	84	-3
Engineering and applied science	74	0	76	-1	80	3
Fine and applied arts	69	1	83	2	65	7
General arts and science	64	1	81	2	-	-
Health professions	81	3	84	2	81	-3
Humanities	70	-1	82	2	86	1
Mathematics and physical sciences	72	1	79	-1	79	0
Social sciences	63	0	76	0	77	0

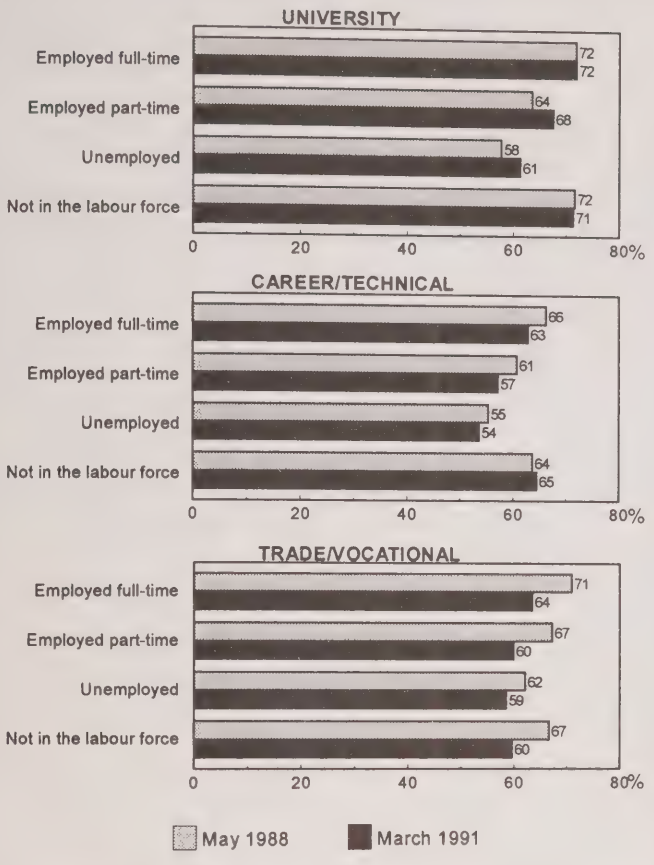
graduates, trade/vocational graduates' satisfaction with their program decreased the most between May 1988 and March 1991. A possible cause of this decline could be the greater difficulty trade/vocational graduates had in the labour market where unemployment rates increased from 15% to 18% between 1988 and 1991. Although the health sciences experienced the largest decrease in the percent who would select the same program again (ten percentage points) their unemployment rate remained the same at 5%. Other employment factors contributed to the decline. In 1988 one third of health science graduates were working part-time and a quarter were still working part-time in 1991, the highest of any trade/vocational field. The most frequently given reason for part-time work was that full-time work could not be found. They were the only trade/vocational field where job satisfaction declined significantly. Earnings fell below the median for all trade/vocational graduates in 1991 after starting out above it in 1988.

Why opinions change?

Between a quarter and a third of all 1986 graduates changed their opinion of their education program between 1988 and 1991. It is likely that their experiences in the labour market influenced the re-assessment of their education programs.

Chart 5-11 shows that the likelihood of graduates to select the same program decreased with the strength of their attachment to the labour market (i.e., full-time workers were most likely, part-time a little less likely and unemployed were the least likely to select the same program again). However, university and career/technical graduates not in the labour force were almost equally

Chart 5-11. Percent who would select the same program in retrospect, by labour force status



likely to select the same program as full-time workers. Trade/vocational graduates not in the labour force were similar to part-time workers in the likelihood to select the same program again.

Between 1988 and 1991, in each labour force status category, university graduates' likelihood of selecting the same program either increased or remained about the same. In contrast, trade/vocational graduates were less willing in 1991 to select the same program again regardless of labour force status. Career/technical graduates who were working full-time, part-time or who were unemployed were only slightly less receptive to select the same field again in 1991 than they were in 1988. Those career/technical graduates not in the labour force did not change their opinion.

Between 1988 and 1991 the number of unemployed university graduates decreased by 29%. As university graduates labour market situation improved between 1988 and 1991 so did their opinions of their education program. Over the same time, the number of 1986 career/technical and trade/vocational unemployed graduates increased by 3% and 12%, respectively. The more difficult job market for career/technical and trade/vocational graduates negatively affected their willingness to select the same program again.

Not all trade/vocational and career/technical graduates experienced hardship in the labour market nor did the labour market situation improve for all university graduates. Table 5-5 shows how graduates' opinions changed between 1988 and 1991 based on changes in their labour force status over the same time. The majority of career/technical and trade/vocational graduates had full-time jobs in both May 1988 and March 1991. Despite no change in their labour force status, this group of trade/vocational and career/technical graduates were less likely to select their program again in 1991 than they were in 1988. Those career/technical and trade/vocational graduates whose labour market situation had worsened (i.e., changed from full-time jobs in 1988 to unemployed or not in the labour force in 1991) were less likely to select their program again. Improved labour market outcomes for some trade/vocational graduates in 1991 (i.e., those graduates who were employed part-time or unemployed in 1988 and were employed full-time in 1991) did not increase their likelihood to select their program again.

In contrast, university graduates who were employed full-time in 1988 but were unemployed in March 1991 changed the opinion of their program very little. Only university graduates who moved from full-time employment in 1988 to outside the labour force in 1991 had a significant downward shift in their opinion of their program. University graduates whose employment situation improved between 1988 and 1991 also increased their likelihood of selecting the same program again.

Table 5-5. Change in the percentage who would select the same program in retrospect by change in labour force status between 1988 and 1991

Labour force status in May 1988	Labour force status in March 1991	University		Career/technical		Trade/vocational	
		% who would select the same program in March 1991	Percentage point difference from May 1988	% who would select the same program in March 1991	Percentage point difference from May 1988	% who would select the same program in March 1991	Percentage point difference from May 1988
		%					
Employed full-time	Employed full-time	74	-	65	-3	67	-7
Employed full-time	Employed part-time	71	-	62	-	62	-12
Employed full-time	Unemployed	61	-	58	-5	56	-12
Employed full-time	Not in the labour force	61	-8	53	-9	58	-12
Employed part-time	Employed full-time	70	7	63	-2	61	-3
Employed part-time	Employed part-time	69	-2	55	-10	61	-12
Unemployed	Employed full-time	66	6	58	2	64	-2
Unemployed	Unemployed	58	-3	48	-9	52	-11
Not in the labour force	Employed full-time	76	4	67	5	62	-9

University and career/technical graduates who were out of the labour force in 1988 and had full-time employment in 1991, were the most positive about their program and were most likely to select their program again. In 1988 most of them were students.

Thus, regardless of changes in labour force status between 1988 and 1991, trade/vocational graduates' opinion of their program worsened. Still, over 60% said they would select the same program again. The labour market situation improved for many university graduates between 1988 and 1991 and their opinion of their program reflected this change.

Conclusion

Post-graduation studies were very popular with 1986 graduates, even more so than the 1982 graduates. Graduates who were able to complete their post-graduation studies before 1991 were more likely to have had full-time employment than graduates who did not pursue further studies. Those who completed their studies in 1991 were less likely to be working full-time because they had limited time to find full-time employment before March 1991. Graduates continued pursuit of more education after graduating in 1986 is clear evidence that graduates recognize the need for more education. This survey and previous National Graduates Surveys have consistently shown that education is one of the key determinants of labour market success.

REFERENCES AND NOTES

1 James Downey and David McCamus, "**To be our Best: Learning for the Future**", The Corporate-Higher Education Forum, Montreal, 1990, p.4.

2 Maryann McLaughlin, "**Employability Skills Profile: What are Employers Looking For**", The Conference Board, Report 81-92E, Ottawa, 1992, p.3.

3 Government of Canada, "**Learning Well ... Living Well** ", Consultation Paper, Ministry of Supply and Services, Ottawa, 1991, p.18.

Government of Canada, "**Improving Social Security in Canada**", A Discussion Paper, Human Resources Development Canada, Ottawa, 1994, p.58.

4 In comparison the 1990 Adult Education and Training Survey (AETS) indicated that 24% of 15 to 34 year-olds participated in adult education between December 1989 and November 1990. Robert Couillard, "The Adult Education and Training Survey", Employment and Immigration Canada and Statistics Canada, Ottawa, 1993, p.3.

Appendix A. Methodology

Introduction

The Follow-up of 1986 Graduates Survey (FOG) was conducted by telephone during March and April 1991. It was the second time the same group of 1986 trade/vocational, college and university graduates was contacted. They were originally interviewed in the 1988 National Graduates Survey (NGS). No attempt was made to contact those in the sample who were not interviewed in 1988. This appendix describes the methodology used by Statistics Canada in conducting the 1991 Follow-up Survey of 1986 Graduates (FOG) and the 1988 National Graduates Survey (NGS).

The primary objective of the survey was to obtain information on the relationship between education/training and labour market experiences. The 1991 FOG survey provides an opportunity to analyze employment, occupational and geographic shifts longitudinally over the first five years after graduation. The survey was sponsored by Human Resources Development Canada (HRDC).

I. Target Population

1986 graduates from university, college and trade/vocational programs (excluding apprenticeships and continuing education programs) are the target population for the 1988 NGS and 1991 FOG survey. A "graduate" was defined as someone who had received, or who was eligible to receive a degree, diploma or certificate from a recognized university, college, trade/vocational school or similar institution in the calendar year 1986. This included:

1. graduates of university programs leading to bachelor's, master's or doctoral degrees, or specialized certificates or diplomas. Excluded were those from continuing education courses and military colleges.
2. graduates of postsecondary programs (i.e., programs of one year duration or longer which normally require high school completion or its equivalent for admission) in community colleges, CAATs, CEGEPs, technical institutes, hospital schools of nursing or radiology or similar institutions. Graduates from CEGEP general programs (i.e., pre-university CEGEP programs in Quebec) were surveyed, however the results for this group of graduates is not presented in this document. Their experiences after graduation greatly differed from those of other community college graduates across Canada because their program was specifically designed to prepare students for entry into university.
3. graduates of skilled trades programs (i.e. pre-employment) excluding programs of less than three months duration, basic training or skill development programs, and apprenticeship programs.

Graduates from private postsecondary institutions were excluded (i.e., institutions operating on a for profit basis and not usually receiving public funding (e.g., commercial business schools)).

II. The Sample

As complete a list as possible of all 1986 graduates was compiled from lists provided by individual institutions and provincial Ministries of Education including names, permanent addresses and telephone numbers for the 1988 National Graduates Survey. This list included 268,653 degrees, diplomas and certificates granted in 1986. From this list a sample was drawn and stratified by province of study, level of study and major field of study groups. The strata were categorized as follows:

Levels of study:

1. Bachelor's degrees including first professional degrees (M.D., D.D.S., Ll.B., D.V.M., O.D. etc.) and undergraduate diplomas
2. Master's degrees including graduate diplomas
3. Earned doctorates
4. Postsecondary level programs from community colleges, CEGEPs, CAATs, technical institutes, hospital schools of nursing and radiology and similar institutions
5. Trade/vocational programs

University field of study strata:

1. Agriculture and biological sciences
2. Business, commerce, law and economics
3. Education
4. Engineering and applied arts
5. Fine and applied arts
6. General arts and science and no specialization
7. Medical and health professions
8. Humanities
9. Mathematics and physical sciences
10. Other social sciences

College field of study strata:

1. No specialization, arts, humanities, unknown
2. Health and related sciences
3. Chemical technologies, transportation technologies, general engineering, aeronautical engineering, industrial engineering
4. Electrical and electronic technologies, mathematics and computer science
5. Mechanical engineering, architectural and construction engineering
6. Natural sciences and primary industries
7. Social sciences and services
8. Secretarial sciences, mechandising and sales, service industry technologies, miscellaneous
9. Management and administration

Trade/vocational field of study strata:

1. No specialization, arts, arts and science, transportation technology, merchandising and sales, service industry technology
2. Health services and related, social sciences and services
3. Electrical and electronic technologies
4. Automotive mechanics
5. Other mechanical
6. General engineering, architectural and construction engineering
7. Engineering technologies, chemical technology, architectural design, drafting technology, industrial engineering
8. Natural sciences and primary industries
9. Journalism, secretarial science
10. Mathematics and computer science, business and commerce, management and administration

The sample was selected to guarantee that a 5% estimate by level and field of study strata at the national level would have a coefficient of variation of 15% or less (i.e., a 5% estimate would be between 3.5% and 6.5% 19 times out of 20). In addition the sample was selected to guarantee the same reliability provincially by level of study but not by field of study strata.

III. Data collection - 1988 NGS

A sample of 53,136 was selected for the 1988 National Graduates Survey. Interviewers attempted to contact all graduates in the sample, initially using the telephone numbers provided by their institution. Telephone directories, city directories, alumni lists,

professional associations, local taxation offices, and motor vehicle licence bureaus were also used to trace graduates in the selected sample. 76.8% were contacted and interviewed. Those found to be living outside Canada were not traced any further and were not questioned (4.4%). Others in the sample were found not have graduated in 1986 and were not questioned further (2.2%). 9.7% of the NGS sample could not be traced and another 3.6% were absent for the duration of the interviewing period, had an unlisted number or did not have a telephone. Participation in the survey was voluntary. Only 0.7% of the sample refused to answer the questionnaire once contacted. If a respondent refused to provide some or all of the information requested, interviewers' supervisors were instructed to make a second call in an attempt to obtain information. If the respondent was temporarily away or there were some language or other difficulties preventing an interview, interviewers were instruction to call back at another time. Proxy responses were not allowed.[1]

Table A-1. Institutions not represented in the 1988 NGS and 1991 FOG Surveys

Institution	Province	Number of graduates
College		
Prince Edward Island School of Nursing	P.E.I.	159
School of Radiological Technology, Moncton Hospital	N.B.	9
Toronto Institute of Medical Technology	Ont.	427
Ontario Cancer Foundation, Hamilton	Ont.	3
Red River Community College	Man.	2,498
Grace General Hospital	Man.	127
Pasqua Hospital School of Cytotechnology	Sask.	2
A. Maxwell Evans Clinic	B.C.	9
University		
Trent University	Ont.	963
College Dominicain de Philosophie et de Theologie (Montreal Campus)	Que.	34
Ontario Theological Seminary	Ont.	58
Lutheran Theological Seminary (University of Saskatchewan)	Man.	23
Vancouver School of Theology	B.C.	20
Northwest Baptist Theological College	B.C.	60

Institutional exclusions

Although efforts were made to include every public institution in Canada offering university, college or trade/vocational programs, several institutions provided their lists of graduates too late to be included in the survey while others provided incomplete lists. Table A-1 shows which institutions are not represented in the 1988 NGS and 1991 FOG surveys of 1986 graduates.

IV. Data collection - 1991 FOG

In the 1988 NGS survey respondents were asked to provide an address and telephone number where they could be reached if Statistics Canada wanted to contact them in the future. They were also asked to provide the name, address and telephone number of a friend, relative or neighbour who would know how to contact them if they moved. This provided the basic tracing information for the 1991 FOG survey. 1986 graduates who were Canadian residents in June 1988, who responded to the 1988 National Graduates Survey and agreed to allow Statistics Canada to share their responses with Employment and Immigration Canada, Secretary of State and provincial Ministries of Education and Labour formed the sample for the 1991 FOG survey. 88% (35,401) were contacted and were completely or partially interviewed in March/April 1991. Another 4.3% were unable to be traced and 1.3% were found to be living outside Canada and therefore were not interviewed.[2]

V. Sampling error

The estimates derived for this survey are based on a sample of graduates. Somewhat different results would have been obtained if a complete census had

[1] 0.7% were contacted previously (i.e., they had received more than one 1986 degree, certificate or diploma and were only interviewed once). 0.1% had died while another 1.0% could not be contacted or interviewed for some other reason.

[2] 0.8% refused to respond, 4.1% were absent for the duration of the interviewing period, had an unlisted telephone number or did not have a telephone, 0.1% had died, and 1.2% were not interviewed for other reasons or who were unwilling to share their responses with Human Resources Development Canada , Secretary of State or provincial ministries of Education and Labour.

been taken using the same questionnaires, interviewers, supervisors, processing methods, etc. The difference between the estimates derived from the sample and those derived from a census taken under similar conditions is called the sampling error.

In general, the value of the sampling error is unknown, but it is possible to estimate its probable size using sample data. The sampling variance gives us an indication of the size of the sampling error assuming simple random sampling within each strata and the absence of bias. The size of the sampling error is often reported using the ratio of the standard deviation (the square root of the sampling variance) to the estimate and is called the coefficient of variation or "cv". This is a good indicator of data reliability.

The sampling error can also be expressed as a confidence limit (i.e., the estimate is guaranteed to be within a range of values a certain percentage of the time, e.g. 95% of the time). The coefficient of variation expressed as a confidence limit means that two times out of three, the error in the estimates will be less than or equal to the value of the cv. For example if the cv is .10, 10%, then the standard deviation is 10% of the estimate. Thus, the true value of the estimate will be within 10% of the estimate 67% of the time. Data reliability is also often expressed as a 95% confidence limit (within two standard deviations of the estimate). Therefore a 10% estimate with a cv of 25% would be expressed as 10% ± (2x25%cv) = 10% ± (10%x50%) = 10% ± 5%. In this case the 95% confidence limit indicates that the true value of the estimate lies within the 5% to 15% range 19 times out of 20.

Table A-3 shows the number of respondents to both the population counts, number of respondents and response rates for both the 1988 National Graduates Survey and the 1991 Follow-up of 1986 Graduates Survey.

VI. Reliability indicators in this publication

The level of data reliability and the guidelines for publishability are shown in Table A-2. In this publication, where the coefficient of variation (cv) is 0.0 - 16.5%, the estimate is unqualified and there is no special notation in the text. For cvs 16.6 - 25% the estimate is qualified by an asterisk, "*", which indicates that high sampling variability is associated with the estimate and it should be used with caution. Coefficients of variation between 25.1% and 33.3% are marked with a double asterisk "**" indicating extremely high sampling variability and that the estimate should be used with extreme caution. Estimates with cvs above 33.3% are not published and are replaced by a double dashes "--". Reliability of these estimates is too low to allow release.

Table A-2. Sampling variability guidelines for the National Graduates Survey and Follow-up of Graduates Survey

Type of Estimate	CV (%)	Guidelines
1. Unqualified	0.0- 16.5	Estimates can be considered for general unrestricted release. Requires no special notation.
2. Qualified	16.6-25.0	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning subsequent users of the high sampling variability associated with the estimates. Such estimates are identified by the symbol "*".
3. Confidential	25.1-33.3	Estimates can be considered for general unrestricted release only when sampling variabilities are obtained using an exact variance calculation procedure. Exact variance calculations for each estimate have been followed in this publication. Estimates with this high level of unreliability have been marked with "**".
4. Not for release	33.4 or greater	Estimates cannot be released in any form under any circumstances. Such estimates are deleted and replaced by "--".

Table A-3. Total graduates, sample sizes and usable responses, by province of study and level of education

Level of education and province of study	Total graduates[1]	Sample size 1988[2]	Usable responses 1988[3]	Sample size 1991	Usable responses 1991	% of 1988 sample that were usable responses in 1991	Weighted usable responses 1991
University							
Canada	134,283	24,557	18,597	17,959	16,091	66%	119,947
Newfoundland	2,105	958	817	806	754	79%	1,992
Prince Edward Island	336	276	250	244	226	82%	318
Nova Scotia	5,934	1,518	1,183	1,150	1,023	67%	5,159
New Brunswick	3,025	1,141	903	883	745	65%	2,693
Quebec	40,516	4,702	3,602	3,473	3,152	67%	37,852
Ontario	52,848	7,220	5,027	4,876	4,401	61%	46,288
Manitoba	5,674	1,647	1,259	1,198	1,120	68%	4,798
Saskatchewan	4,822	1,332	1,064	1,022	919	69%	4,343
Alberta	9,770	3,701	2,906	2,812	2,419	65%	8,721
British Columbia	9,253	2,062	1,586	1,495	1,332	65%	7,782
Bachelor's							
Canada	115,843	14,777	11,857	11,518	10,276	70%	104,887
Newfoundland	1,923	776	675	666	626	81%	1,834
Prince Edward Island	336	276	250	244	226	82%	317
Nova Scotia	5,243	1,000	801	781	688	69%	4,604
New Brunswick	2,693	809	679	664	561	69%	2,454
Quebec	35,501	2,579	2,063	2,013	1,835	71%	33,529
Ontario	44,815	3,362	2,535	2,473	2,208	66%	39,770
Manitoba	5,060	1,175	933	898	832	71%	4,327
Saskatchewan	4,404	914	778	751	671	73%	4,022
Alberta	8,182	2,777	2,245	2,175	1,871	67%	7,444
British Columbia	7,686	1,109	898	853	758	68%	6,585
Master's							
Canada	16,433	7,837	5,653	5,405	4,886	62%	13,773
Newfoundland	173	173	138	136	125	72%	153
Prince Edward Island	0	0	0	0	0	--	0
Nova Scotia	637	464	355	343	311	67%	527
New Brunswick	315	315	214	211	176	56%	231
Quebec	4,740	1,848	1,335	1,261	1,135	61%	4,084
Ontario	6,957	2,846	1,964	1,894	1,732	61%	5,846
Manitoba	543	401	287	265	255	64%	430
Saskatchewan	376	376	268	256	235	63%	298
Alberta	1,350	686	532	515	448	65%	1,141
British Columbia	1,342	728	560	524	469	64%	1,064
Doctorate							
Canada	2,007	1,943	1,087	1,036	929	48%	1,287
Newfoundland	9	9	4	4	3	33%	4
Prince Edward Island	0	0	0	0	0	--	0
Nova Scotia	54	54	27	26	24	44%	28
New Brunswick	17	17	10	8	8	47%	8
Quebec	275	275	204	199	182	66%	239
Ontario	1,076	1,012	528	509	461	46%	672
Manitoba	71	71	39	35	33	46%	42
Saskatchewan	42	42	18	15	13	31%	24
Alberta	238	238	129	122	100	42%	137
British Columbia	225	225	128	118	105	47%	134

Table A-3. Total graduates, sample sizes and usable responses, by province of study and level of education

Level of education and province of study	Total graduates[1]	Sample size 1988[2]	Usable responses 1988[3]	Sample size 1991	Usable responses 1991	% of 1988 sample that were usable responses in 1991	Weighted usable responses 1991
College							
Canada	89,162	16,100	13,080	12,840	11,486	71%	84,818
Newfoundland	902	648	495	491	454	70%	754
Prince Edward Island	447	356	327	324	286	80%	434
Nova Scotia	934	592	534	524	478	81%	888
New Brunswick	983	932	813	799	719	77%	917
Quebec	38,071	2,917	2,513	2,467	2,267	78%	36,974
Ontario	31,119	4,306	3,374	3,321	2,996	70%	29,412
Manitoba	1,430	796	687	605	610	77%	1,330
Saskatchewan	1,271	727	606	591	525	72%	1,189
Alberta	8,497	3,290	2,616	2,565	2,201	67%	8,010
British Columbia	5,312	1,340	1,028	1,008	894	67%	4,754
Yukon	38	38	18	17	15	39%	130
Northwest Territories	158	158	69	68	41	26%	24
Trade/vocational							
Canada	45,208	12,479	9,137	8,977	7,824	63%	40,298
Newfoundland	3,324	1,026	713	705	653	64%	2,626
Prince Edward Island	378	378	214	213	186	49%	235
Nova Scotia	3,226	985	844	838	739	75%	3,087
New Brunswick	2,004	535	415	403	338	63%	1,825
Quebec	7,995	1,956	1,473	1,438	1,293	66%	7,615
Ontario	12,149	2,673	1,852	1,818	1,556	58%	10,433
Manitoba	2,497	904	744	728	664	73%	2,288
Saskatchewan	1,557	711	579	575	504	71%	1,447
Alberta	2,632	1,233	842	831	666	54%	2,324
British Columbia	9,257	1,889	1,372	1,343	1,155	61%	8,280
Yukon	146	146	72	68	57	39%	41
Northwest Territories	43	43	17	17	13	30%	97

[1] The number of graduates reported to Statistics Canada in response to requests for detailed lists of graduates including name, address, telephone number, field of study and level of qualification. This number is generally lower than counts of degrees, diplomas and certificates published in Education in Canada (catalogue 81-229) because some institutions were not surveyed or were only partially covered.

[2] The number of graduates selected for the 1988 National Graduates Survey sample.

[3] Graduates still living in Canada in 1988 who provided complete or partial responses to the questionnaire. Graduates who received more than one degree, certificate or diploma in 1986 were only interviewed once. The following groups are excluded:
a) all graduates inadvertently included in the sample who did not graduate in 1986;
b) all graduates not living in Canada at the time of the survey
c) trade/vocational graduates in programs of less that 3 months duration
d) those who had died before the interview

Appendix B

Tables with Selected Characteristics of 1986 Graduates

Table B-1A. Characteristics of 1986 trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	39,881	70	9	15	5	16	66	8	17	8	19	22	26
Arts	1,948	62	9 *	19	9 *	21	56	9 *	20	15	23	16	20
Commercial and promotional arts	175 *	63 *	–	–	–	–	56 *	-	–	–	–	–	–
Commercial arts	131 *	84	–	–	–	–	53 **	-	–	–	–	–	–
Creative and design arts	456	56	–	20 **	16 **	23 **	51	–	14 **	24 *	18 **	14 *	18 **
Fashion arts	351	55	–	20 **	18 **	25 **	51	–	–	25 **	–	14 *	12 **
Interior decorating	–	65 *	–	–	-	–	68 *	-	–	–	–	–	–
Other creative and design arts	70 **	59 **	–	–	–	–	–	–	–	–	–	–	-
Fine arts	94 **	58 *	–	–	–	–	47 **	–	–	–	–	–	–
Handicrafts	71 **	58 **	-	–	–	–	–	–	–	–	–	-	-
Graphic and audio-visual arts	261	79	–	–	–	–	69	–	–	–	–	17 *	22 *
Printing and publishing	202 *	83	-	–	–	–	67	–	–	–	–	19 **	25 **
Other graphic and audio-visual arts	–	80	–	–	-	–	80	-	–	-	–	–	–
Mass communications	–	64 **	-	–	-	–	73 **	-	–	-	–	–	–
Radio and television broadcasting	–	–	-	–	-	–	69 **	-	–	-	–	-	–
Personal arts	815	61	11 *	19	–	21	56	6 **	21	16 *	25	12	15
Barbering/hairdressing	400	57	–	22 *	–	24 *	54	–	21 **	18 **	26 *	12 *	15 *
Other personal arts	415	65	13 *	17 *	–	17 *	59	–	22 *	13 *	25 *	12	15
Other applied arts	111 *	52 **	–	–	–	–	–	–	–	–	–	–	–
Repair and renovation	111 *	52 **	–	–	–	–	–	–	–	–	–	–	–
Furniture/upholstery	111 *	52 **	–	–	–	–	–	–	–	–	–	–	–
Arts and sciences	103 *	42 *	–	43 *	–	49 *	76	-	24 **	-	24 **	24 **	33 *
Business and commerce	11,776	67	11	15	6	16	66	9	14	10	15	19	23
Management and administration	2,362	73	7 *	13	6 *	14	66	10	15	9	16	21	24
Financial management	651	81	–	7 **	6 **	8 **	78	5 **	9 *	7 **	10 *	20	23
Accounting	601	80	–	7 **	6 **	7 **	80	5 **	7 **	7 **	7 **	20	23
Other financial management	–	75 **	-	–	-	–	–	-	75 **	-	75 **	-	-
Industrial management	4,172	66	11	17	6 *	18	64	9	16	10	18	19	24
Hotel/restaurant/resort management	264	56	–	25 **	–	28 **	40 *	–	25 **	28 **	35 **	14 *	21 **
Management and administration-business and commerce	915	74	10 *	11 *	6 **	11 *	66	11 *	15 *	8 **	16	21	25
Merchandising and sales	440	67	–	17 **	–	18 **	68	–	12 **	13 **	14 **	19 *	24
Secretarial science	6,076	66	12	15	6	16	66	10	12	11	14	19	22
Business machine operations	1,375	70	9 *	13 *	8 *	14 *	62	12 *	15	11 *	17	20	25
Word processing	551	69	10 **	–	12 **	–	69	–	12 **	14 **	13 **	21	25
Other business machine operations	816	70	8 **	16 *	–	17 *	57	16 *	17 *	10 **	19 *	19	24
Secretary-accounting, bookkeeping	1,044	61	13 *	19	6 **	20	67	9 *	12 *	12 *	14 *	17	20
Secretary-general	2,913	65	12	17	6 *	18	65	11	14	10	15	19	21
Secretary-legal	226	90	–	–	-	–	79	–	-	–	-	20 *	25 *
Legal secretary/law clerk	207 *	89	–	–	-	–	77	–	-	–	-	21 *	25 *
Secretary-medical	175 *	60	–	–	-	–	91	-	–	–	–	–	24 *
Health records technology	–	83	–	-	-	-	100	-	-	-	-	–	–
Medical secretary	144 *	61 *	–	–	-	–	89	-	–	–	–	–	24 **
Switchboard operator/receptionist	–	–	–	-	–	-	–	-	-	–	-	-	-
Other secretarial/clerical	102 *	71	–	–	-	–	63 *	–	–	–	–	20 **	–
Service industry technologies	2,898	65	13	16	6 *	17	67	8 *	15	10	17	17	22
Food preparation	2,493	66	11	16	6 *	17	66	7 *	17	10 *	19	17	23
Baking	367	66	–	–	–	–	71	–	–	–	–	17 *	20 *
Cooking	1,826	68	8 *	17	6 **	19	69	6 **	17	9 *	18	17	24
Food preparation-other	228	47 *	33 **	–	–	–	45 *	–	–	–	–	–	25 **
Food serving	231	63	–	–	–	–	61	–	–	–	–	23 **	20 **
Engineering and applied sciences	17,982	76	4	17	3	17	70	4	21	6	22	26	30
Chemical technologies	–	77 *	-	–	-	–	72 *	–	–	-	–	–	–
Industrial chemical technologies	–	74 *	-	–	-	–	69 *	–	–	-	–	-	–

Table B-1A. Characteristics of 1986 trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Chemical processing	–	74 *	-	–	-	–	69 *	–	–	-	–	-	–
Electrical/electronic engineering technologies	2,983	79	4 *	15	2 *	15	73	4	18	4 *	19	23	32
Avionics technologies	–	83	-	–	-	–	92	-	–	-	–	33 **	35 **
Electrical/electronic engineering technologies	2,547	79	3 *	15	2 *	15	71	4 *	20	4 *	21	23	31
Electrical	1,275	78	2 **	17	–	17	67	5 *	24	3 *	25	26	32
Electronics	1,066	82	4 **	9 *	3 **	10 *	76	4 **	15	6 **	15	23	30
Other electrical/electronic technologies	–	50 **	–	–	-	–	75 *	-	–	-	–	-	–
Electro-mechanical technologies	234	77	–	–	–	–	83	–	–	–	–	27	32
Electric motors	213 *	80	–	–	–	–	81	–	–	–	–	27	32
Telecommunications technologies	148 *	87	–	–	-	–	93	–	–	-	–	26	32
Radio and television	89 **	87	–	–	-	–	97	-	–	-	–	27 *	28 *
Other telecommunications electronics	–	86	–	–	-	–	87	–	-	-	-	23 **	34 **
Engineering technologies	13,011	76	3	17	3	18	68	3	22	6	24	26	30
Engineering-general	1,429	75	4 **	16	4 **	17	69	6 *	21	4 **	22	26	30
Civil technologies	238	66	–	21 **	–	22 **	62	–	29 *	–	31 *	33 *	30 *
Piping technologies	141 *	85	–	–	–	–	83	-	–	–	–	28 *	32 *
Road construction	69 **	–	–	–	–	50 **	–	–	56 **	–	63 **	-	-
Drafting	936	74	–	17	–	18	68	7 *	21	–	22	23	29
Engineering design or drafting	505	74	–	19 *	–	20 *	75	–	18 *	–	19 *	26	31
Mechanical drafting	–	77 *	-	–	-	–	92	–	-	-	-	–	–
Instrumentation	134 *	93	-	–	–	–	81	–	–	–	–	29 *	39 *
Repair and services	71 **	84	–	–	-	–	74	–	–	-	–	27 **	–
Surveying	–	77 *	-	–	-	–	77 *	-	–	-	–	–	–
Engineering-mechanical	5,170	80	3	15	2 *	15	77	2	17	4	18	26	30
Agricultural equipment mechanics	176 *	82	–	–	–	–	56	–	33 *	–	35 *	23	35 *
Aircraft mechanics	194 *	95	-	–	-	–	92	-	–	–	–	28 *	36
Auto technology	1,569	76	4 *	17	2 *	17	75	2 *	18	4 *	19	20	26
Auto body repair	590	75	5 **	19	–	19	70	–	23	5 **	24	19	25
Auto mechanics	979	77	4 *	16	3 *	17	79	2 **	16	3 *	16	21	27
Heavy equipment mechanics	1,490	83	–	14	–	14	74	3 **	21	3 **	21	28	34
Hydraulics	–	80	-	–	-	–	90	-	–	-	–	–	–
Marine mechanics	113 *	71	-	25 **	–	26 **	78	–	–	–	–	28 *	22 *
Small engine mechanics	235	71	–	12 **	–	14 **	67	-	26 *	–	28 *	19	24
Other mechanical engineering technologies	1,331	80	4 **	16	–	16	83	3 **	12	3 **	12	30	35
Engineering-architectural and construction	4,170	72	3 *	20	5	21	58	4 *	30	8	33	24	30
Architectural design/drafting technology	118 *	81	–	–	–	–	81	–	–	-	–	23 *	25 **
Construction or building technologies	2,301	70	3 **	21	6 *	22	56	3 *	29	11	33	23	29
Heat, insulation	–	73 *	–	–	-	–	62 **	-	–	-	–	–	–
Masonry-brick, stone, concrete	194 *	77	–	20 **	–	20 **	44 *	-	52	–	55	34 **	30 **
Plumbing	426	72	–	24 *	–	24 *	60	–	29	–	31	23	30
Woodworking and carpentry	1,396	69	–	22	7 *	23	56	4 **	27	13	31	23	25
Other construction or building technologies	235	73	–	–	–	–	59	–	23 **	–	27 **	24 *	33 *
Welding technologies	1,739	73	4 **	19	4 **	20	59	4 **	33	4 *	34	28	31
Engineering-industrial	2,238	76	–	19	–	20	69	3 **	20	7 *	22	23	30
Industrial design/operations technologies	67 **	55 **	–	–	–	–	50 **	-	–	–	–	–	–
Machinist	1,371	81	–	16	–	16	74	–	21	4 **	22	23	30
Manufacturing technologies	682	69	–	25	–	26	63	–	20 *	11 **	23 *	22	28
Automobile/mechanical and related	–	83 *	-	–	-	–	83 *	-	–	-	–	–	–
Clothing/other fabric products	202 *	60	–	30 **	–	32 **	51 *	–	–	–	–	–	–
Electrical/electronic equipment and related	134 *	81	-	–	-	–	49 *	–	28 **	–	34 **	20 *	–
Metal	57 **	60 *	-	–	–	–	83	-	–	-	–	–	–
Other manufacturing	130 *	70	–	25 **	-	25 **	61	–	32 **	–	33 **	26 *	30 **
Quality control	61 **	86	-	–	-	–	57 *	–	–	–	–	31 **	–

Table B-1A. Characteristics of 1986 trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Mathematics and computer science	1,558	77	7 *	11	3 **	11	75	7 *	11	6 *	12	24	30
Computer science	1,541	77	7 *	11	3 **	12	75	7 *	11	6 *	12	24	30
Computer programming	295	70	18 **	11 **	-	11 **	75	–	–	–	–	23	30
Computer sciences-system design and analysis	768	77	–	12 *	–	12 *	75	–	13 *	7 **	14 *	27	30
Computer technologies	342	79	–	10 **	–	11 **	77	–	–	–	–	24	30
Data processing	68 **	94	-	-	-	-	72	-	–	–	–	21 **	25 **
Transportation technologies	358	66	–	26 *	–	27 *	53	–	31 *	–	34 *	26	30 *
Motor transportation	236	58	–	30 *	–	33 *	51	–	31 *	–	35 *	19 *	25 **
Commercial vehicle transportation	74 **	57 **	-	–	–	–	48 **	-	–	–	–	–	–
Driver training/education	163 *	58	–	27 **	–	30 **	52 *	–	31 **	–	33 **	20 **	20 **
Marine transportation	121 *	82	-	–	-	–	57	–	31 **	–	32 **	29 *	40 **
Nautical science/navigation technologies	121 *	82	-	–	-	–	57	–	31 **	–	32 **	29 *	40 **
Health sciences and related	3,734	57	33	5 *	5 *	5 *	61	27	4 *	8	5 *	23	25
Diagnostics and treatment medical technologies	557	79	12 **	–	–	–	67	19 *	–	11 **	–	21	25
Dental hygiene/assistant technologies	455	79	11 **	–	–	–	64	19 *	–	14 **	–	21	23
Emergency para-medical technologies	62 **	73 *	–	-	-	-	65 *	–	–	-	–	–	–
Nursing	3,147	53	37	5 *	5 *	5 *	60	28	4 *	7	5 *	23	25
Diploma nursing	342	41	51	-	–	-	43	52	-	–	-	29 **	33 *
Nursing aide/orderly	2,618	55	34	5 *	5 *	6 *	64	24	4 *	8	5 *	23	24
Nursing refresher	85 **	–	71 *	-	-	-	–	46 **	-	–	-	-	–
Other specialized nursing	64 **	58 **	–	–	-	–	–	–	–	-	–	–	–
Other health related technologies	–	85	–	-	-	-	–	–	–	-	–	-	-
Humanities and related	82 **	70 *	–	–	-	–	65 *	-	–	-	–	–	–
Journalism	–	87	-	–	-	–	100	-	-	-	-	-	–
Library science	–	–	–	-	-	-	–	-	–	-	–	-	-
Natural sciences and primary industries	2,208	70	6 *	19	4 *	20	60	4 *	27	9	30	23	26
Environmental and conservation technologies	113 *	75	–	–	-	–	76	-	–	–	–	23 *	25 *
Water science technologies	87 **	70	–	–	-	–	78	-	–	-	–	23 *	25 **
Wildlife and forest conservation technologies	–	100	-	-	-	-	67 *	-	–	–	-	–	–
Natural sciences	669	65	10 *	18	7 *	19	54	4 **	29	13	33	21	24
Agriculture	60 **	77	–	-	–	-	51	–	21 **	–	26 **	23 *	25 *
Agriculture business	–	77 *	-	-	–	-	–	–	-	-	-	-	-
Agriculture technologies/sciences/engineering	78 **	73	-	–	–	–	64	-	23 **	–	27 **	17 **	15 **
Animal sciences	114 *	48 *	–	–	–	–	41 *	–	37 **	–	45 **	17 **	25 **
Cattle technologies(beef and dairy)	–	87	-	–	-	–	–	–	–	–	–	–	-
Other animal sciences	87 **	41 **	–	–	–	–	38 **	-	42 **	–	52 **	–	25 **
Plant sciences	398	66	10 *	19	5 **	20	56	–	29	12 *	34	21	25
Crops and horticulture	110 *	74	–	–	-	–	70	-	–	–	–	19 *	25 *
Landscaping	128 *	67	–	21 *	–	22 *	53	–	35 *	–	39 *	26 *	25 *
Primary industries (excluding agriculture)	304	68	–	28	–	28	44	–	48	–	51	26	37
Fishing technologies	–	70 *	-	–	-	–	–	–	74 *	-	74 *	–	-
Fishing	–	68 *	-	–	-	–	–	–	72 *	-	72 *	–	-
Forestry technologies	134 *	59	–	34 *	-	34 *	41	-	53	–	56	21 *	28 *
Mining technologies	132 *	78	-	20 *	–	21 *	53	–	37	–	40	35	43 *
Drilling and extractive technologies	132 *	78	-	20 *	–	21 *	53	–	37	–	40	35	43 *
Resource processing technologies	1,122	73	5 **	18	–	18	67	4 **	21	8	23	23	27
Food processing technologies	851	77	5 **	14	–	14	71	–	16	8	18	22	25
Dairy products processing	–	100	-	-	-	-	100	-	-	-	-	–	–
Marine products processing	–	57 **	-	–	-	–	-	-	86	–	100	-	-
Meat processing	780	77	6 **	13	–	14	71	–	15	8	16	21	25
Other food processing technologies	–	–	-	–	-	–	71 **	-	–	-	–	-	-
Forest products processing	192 *	56	–	35	–	37	49	–	41	7 **	44	30	27
Wood products processing	192 *	56	–	35	–	37	49	–	41	7 **	44	30	27

Table B-1A. Characteristics of 1986 trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Metal processing	66 **	76 *	-	--	-	--	61 *	-	--	--	--	--	--
Processing of other metals	66 **	76 *	-	--	-	--	61 *	-	--	--	--	--	--
Petroleum refining technologies	--	100	-	-	-	-	75 *	-	--	-	--	--	-
Social sciences and services	1,990	61	15	14	9 *	15	62	15	12	11	14	20	25
Educational and counselling services	223	76	--	--	--	--	75	--	--	--	--	16 *	18 *
Counselling services technologies	--	84 *	-	--	-	--	84 *	--	-	-	-	-	-
Educational services	199 *	75	--	--	--	--	74	--	--	--	--	16 *	17 *
Education-early childhood	113 *	74	--	-	--	-	67 *	--	--	--	--	16 **	--
Teacher training	--	84	-	-	--	-	79	--	-	--	-	--	--
Teachers aide/educational support	--	79 *	-	--	-	--	79 *	-	-	--	-	--	--
Personal development	470	48	12 **	24 *	16 **	29 *	58	--	20 *	14 **	23 *	20 *	25
Occupational skills development	347	48	--	28 *	--	32 *	59	--	24 *	--	27 *	20 *	25 *
Orientation courses	104 *	38 **	--	--	--	--	46 **	--	--	--	--	--	--
Protection and correction services	215 *	86	--	--	--	--	87	-	--	--	--	31	35
Correctional technologies	157 *	85	--	--	-	--	91	-	--	--	--	31 *	35 *
Police technologies/criminology	--	100	-	-	-	-	88	-	--	--	--	31 *	38
Protection technologies	--	82	-	--	--	--	72 *	-	--	--	--	--	--
Fire	--	72 *	-	--	--	--	--	-	--	--	--	-	-
Recreation and sport	130 *	59 *	--	--	--	--	46 **	--	34 **	--	40 **	--	--
Travel and tourism	104 *	57 *	--	--	--	--	49 **	--	--	--	--	--	--
Travel counsellor/agent	76 **	78 *	--	-	--	-	67 *	--	--	--	--	--	--
Social services	943	58	24	8 **	7 **	9 **	57	24	9 **	10 *	10 **	19	23
Care of the disabled	--	53 *	--	--	-	--	61 *	34 **	--	-	--	17 **	--
Child care services	180 *	62	-	--	--	--	67	--	--	--	--	17 **	23 **
Domestic science and related	300	43 *	38 *	--	--	--	38 *	35 *	--	--	--	15 **	20 **
Social services/welfare technologies	301	72	20 **	--	--	--	72	--	--	--	--	23 *	26 *
Other social services	--	80 *	--	-	-	-	80 *	--	-	-	-	--	--
Other	-	-	-	-	-	-	74 **	-	-	--	-	-	-

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1B. Characteristics of 1986 male trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	22,017	77	3	17	2	17	71	3	21	5	22	24	30
Arts	538	70	–	24 *	–	24 *	63	–	27 *	–	29 *	19	25
Commercial and promotional arts	149 *	68 *	-	–	–	–	52 **	-	–	–	–	–	–
Commercial arts	115 *	89	-	-	–	-	50 **	-	–	–	–	–	–
Creative and design arts	70 **	46 **	–	49 **	-	49 **	71 *	–	–	–	–	–	–
Fashion arts	–	–	-	76 **	-	76 **	67 **	–	–	-	–	-	-
Interior decorating	–	73 *	–	–	-	–	77	-	–	–	–	–	–
Fine arts	–	77 *	-	–	-	–	–	-	–	-	–	-	-
Handicrafts	–	77 *	-	–	-	–	–	-	–	-	–	-	-
Graphic and audio-visual arts	129 *	92	-	–	-	–	88	-	–	-	–	17 **	25 **
Printing and publishing	97 **	95	-	–	-	–	90	-	–	-	–	–	–
Other graphic and audio-visual arts	–	82 *	-	–	-	–	82 *	-	–	-	–	–	–
Mass communications	–	88	-	–	-	–	100	-	-	-	-	–	–
Radio and television broadcasting	–	85	-	–	-	–	100	-	-	-	-	-	–
Personal arts	73 **	55 **	-	–	-	–	–	-	51 **	-	51 **	-	–
Barbering/hairdressing	63 **	–	-	–	-	–	–	-	–	-	–	-	–
Other applied arts	57 **	60 **	-	–	–	–	–	-	–	–	–	–	-
Repair and renovation	57 **	60 **	-	–	–	–	–	-	–	–	–	–	-
Furniture/upholstery	57 **	60 **	-	–	–	–	–	-	–	–	–	–	-
Arts and sciences	95 **	37 *	–	47 *	–	53 *	78	-	–	-	–	24 **	33 *
Business and commerce	2,785	74	6 *	17	3 **	18	73	4 **	18	5 *	19	21	26
Management and administration	712	80	–	13 *	–	13 *	76	–	16 *	–	17 *	23	28
Financial management	156 *	87	-	–	–	–	79	–	–	–	–	21 *	25 *
Accounting	136 *	85	-	–	–	–	76	–	–	–	–	21 *	23 *
Industrial management	2,296	72	6 *	19	–	20	72	4 **	19	5 **	20	21	26
Hotel/restaurant/resort management	99 *	71	-	–	–	–	75	–	–	-	–	–	21 **
Management and administration-business and commerce	196 *	79	–	–	–	–	83	-	–	–	–	23 *	28 *
Merchandising and sales	261	75	-	21 **	–	22 **	79	–	–	–	–	22 *	25 *
Secretarial science	177 *	79	–	–	–	–	71	–	25 **	–	26 **	20 *	25 *
Business machine operations	66 **	95	-	-	–	-	64 *	–	–	–	–	–	–
Other business machine operations	–	94	-	-	–	-	–	–	–	–	–	–	–
Secretary-accounting, bookkeeping	91 **	67	–	–	–	–	75	-	–	-	–	21 **	24 **
Service industry technologies	1,635	70	9 **	20	–	20	72	–	19	5 **	20	20	25
Food preparation	1,419	72	7 **	19	–	20	71	–	20	–	21	19	26
Baking	139 *	70 *	–	–	-	–	72 *	-	–	-	–	–	–
Cooking	1,161	72	–	19 *	–	19 *	71	–	19 *	–	20 *	19	25
Food preparation-other	70 **	68 **	–	–	-	–	66 **	-	–	–	–	–	–
Food serving	92 **	62 **	–	–	-	–	59 **	-	–	–	–	–	–
Engineering and applied sciences	15,865	78	3	17	2	17	72	3	21	4	22	26	30
Chemical technologies	–	69 *	-	–	-	–	84	-	–	-	–	-	–
Industrial chemical technologies	–	69 *	-	–	-	–	84	-	–	-	–	-	–
Chemical processing	–	69 *	-	–	-	–	84	-	–	-	–	-	–
Electrical/electronic engineering technologies	2,701	80	3 *	14	2 **	15	73	4 *	19	4 *	20	24	32
Avionics technologies	–	81	-	–	-	–	91	-	–	-	–	–	36 **
Electrical/electronic engineering technologies	2,307	79	3 *	15	2 **	15	71	4 *	21	4 *	22	23	32
Electrical	1,227	78	2 **	17	–	17	67	5 *	25	3 *	26	26	32
Electronics	879	83	–	9 *	–	9 *	76	–	14 *	6 **	14 *	23	31
Other electrical/electronic technologies	–	50 **	–	–	-	–	75 *	-	–	-	–	-	–
Electro-mechanical technologies	213 *	84	–	–	-	–	87	-	–	–	–	27	33
Electric motors	195 *	86	–	–	-	–	85	-	–	–	–	27	33
Telecommunications technologies	131 *	86	–	–	-	–	92	–	–	-	–	26 *	32
Radio and television	86 **	86	–	–	-	–	96	-	–	-	–	26 *	28 *
Other telecommunications electronics	–	83	–	–	-	–	83	–	-	-	-	24 **	35 **

Table B-1B. Characteristics of 1986 male trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Engineering technologies	11,862	78	3	17	2	17	71	3	22	4	23	26	30
Engineering-general	1,200	77	–	16	–	16	72	6 **	19	–	19	27	30
Civil technologies	230	65	–	21 **	–	23 **	64	–	26 **	–	28 **	33 *	30 *
Piping technologies	141 *	85	–	–	–	–	83	-	–	–	–	28 *	32 *
Road construction	61 **	–	–	50 **	–	57 **	–	–	50 **	–	57 **	-	-
Drafting	733	76	–	17 *	–	17 *	73	8 **	17 *	–	18 *	24	30
Engineering design or drafting	413	76	-	20 *	–	20 *	76	–	18 *	–	19 *	26	33
Mechanical drafting	–	77 *	-	–	-	–	92	–	-	-	-	–	–
Instrumentation	134 *	93	-	–	–	–	81	–	–	–	–	29 *	39 *
Repair and services	64 **	93	-	–	-	–	82	-	–	-	–	27 **	–
Surveying	–	71 **	-	–	-	–	71 **	-	–	-	–	–	–
Engineering-mechanical	4,946	80	3	15	2 *	15	77	2 *	17	3	18	26	30
Agricultural equipment mechanics	165 *	84	–	–	–	–	60	–	35 *	–	36 *	21 *	35 *
Aircraft mechanics	188 *	95	-	–	-	–	92	-	–	–	–	28	36
Auto technology	1,502	78	3 *	16	2 **	17	76	2 *	18	4 *	19	21	25
Auto body repair	582	75	–	19	–	19	70	–	22	6 **	24	19	25
Auto mechanics	921	79	3 *	15	3 **	15	79	2 **	16	3 **	16	21	27
Heavy equipment mechanics	1,440	83	–	14	–	14	74	3 **	21	2 **	21	28	34
Hydraulics	–	80	-	–	-	–	90	-	–	-	–	–	–
Marine mechanics	109 *	70	-	26 **	–	27 **	82	–	–	–	–	28 *	22 *
Small engine mechanics	214 *	74	–	14 **	–	14 **	70	-	24 *	–	26 *	19	24
Other mechanical engineering technologies	1,266	80	3 **	16	–	16	83	–	11	3 **	12	30	35
Engineering-architectural and construction	3,836	73	3 *	20	4 *	21	59	3 *	31	7	33	26	30
Architectural design/drafting technology	95 **	89	–	–	-	–	80	–	–	-	–	23 *	30 **
Construction or building technologies	2,045	73	2 **	20	4 **	21	59	3 **	30	9	32	23	30
Heat, insulation	–	73 *	–	–	-	–	62 **	-	–	-	–	–	–
Masonry-brick, stone, concrete	194 *	77	–	20 **	–	20 **	44 *	-	52	–	55	34 **	30 **
Plumbing	398	72	–	23 *	–	23 *	61	–	27 *	–	30 *	23	30
Woodworking and carpentry	1,215	72	–	21	5 **	22	59	–	28	10 *	31	23	27
Other construction or building technologies	190 *	74	–	–	–	–	69	–	20 **	–	22 **	26 *	33 *
Welding technologies	1,688	73	3 **	19	4 **	20	59	–	33	4 **	34	28	31
Engineering-industrial	1,880	80	–	17	–	17	74	–	20	4 **	21	24	30
Industrial design/operations technologies	–	86	-	–	-	–	100	-	-	-	-	–	–
Machinist	1,298	82	–	15	–	15	74	–	21	–	22	23	30
Manufacturing technologies	440	73	–	23 *	–	23 *	73	–	19 *	–	20 *	26	30
Automobile/mechanical and related	–	83 *	-	–	-	–	83 *	-	–	-	–	–	–
Electrical/electronic equipment and related	77 **	84	-	–	-	–	52 *	–	–	–	–	31 **	–
Metal	57 **	60 *	-	–	–	–	83	-	–	-	–	–	–
Other manufacturing	123 *	68	–	26 **	-	26 **	58	–	33 **	–	35 **	26 **	27 **
Quality control	–	93	-	–	-	–	59 *	-	–	–	–	–	–
Mathematics and computer science	954	80	–	13	–	13	82	–	11 *	4 **	12 *	28	30
Computer science	954	80	–	13	–	13	82	–	11 *	4 **	12 *	28	30
Computer programming	150 *	73	–	–	-	–	89	1 **	–	–	–	28 *	33 *
Computer sciences-system design and analysis	495	82	–	12 *	–	12 *	81	–	12 *	–	12 *	29	30
Computer technologies	263	79	-	14 **	–	14 **	83	–	–	–	–	26 *	30
Data processing	–	100	-	-	-	-	68 **	-	–	-	–	–	-
Transportation technologies	295	68	-	28 *	–	29 *	54	–	30 *	–	33 *	27 *	32 *
Motor transportation	174 *	59	-	35 *	–	37 *	52 *	–	29 **	–	33 **	26 **	28 **
Commercial vehicle transportation	74 **	57 **	-	–	–	–	48 **	-	–	–	–	–	–
Driver training/education	100 *	61 *	-	35 **	–	36 **	55 *	–	26 **	–	29 **	–	–
Marine transportation	121 *	82	-	–	-	–	57	–	31 **	–	32 **	29 *	40 **
Nautical science/navigation technologies	121 *	82	-	–	-	–	57	–	31 **	–	32 **	29 *	40 **
Health sciences and related	406	90	–	–	-	–	70	–	–	–	–	27	28

Table B-1B. Characteristics of 1986 male trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Diagnostics and treatment medical technologies	–	84	–	-	-	-	73 *	–	–	-	–	–	–
Emergency para-medical technologies	–	82 *	–	-	-	-	70 *	–	–	-	–	–	–
Nursing	343	91	–	–	-	–	71	–	–	–	–	26	27
Nursing aide/orderly	306	90	–	–	-	–	71	–	–	–	–	26	27 *
Natural sciences and primary industries	1,771	74	5 *	18	2 **	18	64	3 *	27	6	29	23	27
Environmental and conservation technologies	94 **	69	–	–	-	–	79	-	–	–	–	24 **	29 *
Water science technologies	70 **	63 *	–	–	-	–	85	-	–	-	–	–	–
Wildlife and forest conservation technologies	–	100	-	-	-	-	67 *	-	–	-	-	–	–
Natural sciences	429	75	7 **	16	–	16	62	–	26	7 **	28	23	25
Agriculture	–	86	–	-	-	-	57	–	24 **	–	26 **	23 *	25 *
Agriculture technologies/sciences/engineering	64 **	77	-	–	–	–	66	-	28 **	–	30 **	17 **	15 **
Animal sciences	–	70	–	–	-	–	48 **	–	–	–	–	–	–
Cattle technologies(beef and dairy)	–	79 *	-	–	-	–	–	–	–	-	–	-	-
Other animal sciences	–	66 *	–	–	-	–	62 *	-	–	–	–	–	–
Plant sciences	256	72	–	19 *	–	20 *	66	-	26	–	28	23	26
Crops and horticulture	71 **	70	–	–	-	–	75	-	–	–	–	23 **	26 *
Landscaping	88 **	73	–	–	–	–	66	-	31 **	–	32 **	27 *	25 *
Primary industries (excluding agriculture)	280	67	–	28	–	28	43	–	49	–	52	26	37
Fishing technologies	–	70 *	-	–	-	–	–	–	74 *	-	74 *	–	-
Fishing	–	68 *	-	–	-	–	–	–	72 *	-	72 *	–	-
Forestry technologies	114 *	57	–	34 *	-	34 *	38 *	-	59	–	61	21 **	28 *
Mining technologies	129 *	77	-	21 *	–	21 *	54	–	35 *	–	38 *	36 *	43 *
Drilling and extractive technologies	129 *	77	-	21 *	–	21 *	54	–	35 *	–	38 *	36 *	43 *
Resource processing technologies	967	76	–	16	2 **	17	69	2 **	22	6 *	23	23	27
Food processing technologies	726	80	–	12	–	12	75	–	17	6 *	18	22	27
Dairy products processing	–	100	-	-	-	-	100	-	-	-	-	–	–
Meat processing	673	80	–	12	–	13	75	–	16	6 *	17	22	26
Forest products processing	177 *	57	–	34	–	37	46	–	44	8 **	48	31	29
Wood products processing	177 *	57	–	34	–	37	46	–	44	8 **	48	31	29
Metal processing	–	81 *	-	–	-	–	67 **	-	–	–	–	–	–
Processing of other metals	–	81 *	-	–	-	–	67 **	-	–	–	–	–	–
Petroleum refining technologies	–	100	-	-	-	-	75 *	-	–	-	–	–	-
Social sciences and services	497	65	–	24 *	–	25 *	73	–	21 *	–	22 *	29	35
Educational and counselling services	–	100	-	-	-	-	100	-	-	-	-	35 **	–
Educational services	–	100	-	-	-	-	100	-	-	-	-	–	–
Teacher training	–	100	-	-	-	-	100	-	-	-	-	–	-
Personal development	148 *	45 *	–	42 *	–	46 *	65	–	33 **	-	33 **	–	33 *
Occupational skills development	137 *	40 *	–	46 *	–	50 *	62	–	36 *	-	36 *	–	33 **
Protection and correction services	182 *	95	–	–	–	–	87	-	–	–	–	30 *	36 *
Correctional technologies	126 *	97	–	-	-	-	91	-	–	–	–	31 *	36 *
Police technologies/criminology	–	100	-	-	-	-	87	-	–	–	–	31 *	38
Protection technologies	–	82	-	–	–	–	72 *	-	–	–	–	–	–
Fire	–	72 *	-	–	–	–	–	-	–	–	–	-	-
Recreation and sport	62 **	–	-	58 **	–	67 **	–	–	58 **	-	58 **	-	-
Travel and tourism	–	–	-	62 **	–	76 **	–	–	62 **	-	62 **	-	-
Social services	62 **	–	–	–	-	–	79 *	–	–	-	–	–	–
Social services/welfare technologies	–	–	–	-	-	-	78 *	-	–	-	–	-	-

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1C. Characteristics of 1986 female trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	17,671	61	17	13	8	14	60	15	12	12	14	19	22
Arts	1,400	59	12 *	17	12 *	20	53	12 *	17	17	21	14	18
Commercial and promotional arts	–	–	–	–	-	–	84	-	–	-	–	-	-
Commercial arts	–	–	–	–	-	–	75 *	-	–	-	–	-	-
Creative and design arts	386	58	–	–	19 **	–	47	–	–	27 *	–	14 *	14 **
Fashion arts	311	59	–	–	20 **	–	49 *	–	–	28 **	–	14 *	–
Other creative and design arts	70 **	59 **	–	–	–	–	–	–	–	–	–	–	-
Fine arts	60 **	–	–	–	–	–	–	–	–	–	–	-	-
Handicrafts	–	–	-	–	–	–	–	–	–	–	–	-	-
Graphic and audio-visual arts	133 *	67 *	–	–	–	–	50 **	–	–	–	–	–	–
Printing and publishing	105 *	72 *	-	–	–	–	–	–	–	–	–	–	-
Other graphic and audio-visual arts	–	76 *	–	-	-	-	76 *	-	–	-	–	-	-
Personal arts	733	61	12 *	19 *	–	20 *	58	7 **	18 *	17 *	22	12	15
Barbering/hairdressing	338	59	–	20 **	–	23 **	55	–	15 **	22 **	19 **	12 *	12 **
Other personal arts	395	63	14 *	17 *	–	18 *	60	–	21 *	13 *	24 *	12	16
Other applied arts	–	–	–	-	–	-	–	–	–	-	–	-	-
Repair and renovation	–	–	–	-	–	-	–	–	–	-	–	-	-
Furniture/upholstery	–	–	–	-	–	-	–	–	–	-	–	-	-
Business and commerce	8,963	65	13	14	7	16	64	11	12	12	14	19	21
Management and administration	1,634	70	9 *	13	7 *	14	61	13	14	11	16	19	22
Financial management	484	78	–	–	7 **	–	78	–	9 **	7 **	9 **	20	23
Accounting	453	78	–	–	8 **	–	80	–	–	8 **	–	19	23
Other financial management	–	75 **	-	–	-	–	–	-	75 **	-	75 **	-	-
Industrial management	1,871	58	17	14	10 *	15	55	14	12	17	15	17	20
Hotel/restaurant/resort management	165 *	46 *	–	–	–	–	–	–	30 **	45 *	55 **	9 **	–
Management and administration-business and commerce	715	73	10 *	10 *	7 **	11 *	61	14 *	16 *	9 **	17 *	19	22
Merchandising and sales	174 *	56 *	–	–	–	–	53 *	–	–	–	–	17 **	–
Secretarial science	5,892	65	12	16	6	17	66	10	12	11	14	19	22
Business machine operations	1,306	69	9 *	14 *	8 *	15 *	62	12 *	14	12 *	16	20	24
Word processing	535	68	11 **	–	12 **	–	68	–	12 **	14 **	14 **	21	25
Other business machine operations	762	69	8 **	17 *	–	18 *	57	17 *	16 *	10 **	18 *	19	24
Secretary-accounting, bookkeeping	950	61	13 *	19	6 **	20	66	9 *	11 *	13 *	12 *	17	19
Secretary-general	2,905	65	12	17	6 *	18	65	11	14	10	15	19	21
Secretary-legal	226	90	–	–	-	–	79	–	-	–	-	20 *	25 *
Legal secretary/law clerk	207 *	89	–	–	-	–	77	–	-	–	-	21 *	25 *
Secretary-medical	175 *	60	–	–	-	–	91	-	–	–	–	–	24 *
Health records technology	–	83	–	-	-	-	100	-	-	-	-	–	–
Medical secretary	144 *	61 *	–	–	-	–	89	-	–	–	–	–	24 **
Switchboard operator/receptionist	–	–	–	-	–	-	–	-	-	–	-	-	-
Other secretarial/clerical	93 **	68 *	–	–	-	–	60 *	–	–	–	–	–	–
Service industry technologies	1,263	59	18 *	12 *	11 *	13 *	60	13 *	11 *	16 *	13 *	16	18
Food preparation	1,075	59	16 *	12 *	12 *	14 *	60	12 *	12 *	16 *	15 *	15	18
Baking	228	64	–	–	–	–	70	–	-	–	-	–	18 **
Cooking	665	61	–	15 **	12 **	17 **	64	–	12 **	16 **	15 **	15	18 *
Food preparation-other	159 *	37 **	39 **	–	–	–	36 **	–	–	–	–	–	–
Food serving	139 *	63 *	–	–	–	–	62 *	–	–	–	–	23 **	–
Engineering and applied sciences	1,987	64	10 *	18	8 *	19	53	12	20	15	24	20	25
Electrical/electronic engineering technologies	243	70	–	17 **	–	18 **	70	–	16 **	–	17 **	22 *	28 *
Electrical/electronic engineering technologies	205 *	74	–	15 **	–	16 **	70	–	19 **	–	20 **	22 *	27 *
Electrical	–	58 *	–	–	-	–	69 *	–	–	–	–	–	–
Electronics	164 *	76	–	–	–	–	69	–	22 **	–	22 **	22 *	27 **
Electro-mechanical technologies	–	–	–	–	–	64 **	–	–	-	–	-	-	–
Electric motors	–	–	–	–	–	64 **	–	–	-	–	-	-	-

Table B-1C. Characteristics of 1986 female trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1986	March 1991
Telecommunications technologies	–	100	-	-	-	-	100	-	-	-	-	–	–
Engineering technologies	1,064	58	8 *	23	10 *	26	45	9 *	25	21	32	19	24
Engineering-general	224	67	–	17 **	–	19 **	50	–	32 *	–	35 *	21 *	25 *
Drafting	198 *	66	–	20 **	–	22 **	50	–	32 *	–	36 *	21 *	25 *
Engineering design or drafting	93 **	68	–	–	–	–	71	–	–	–	–	26 **	25 **
Engineering-mechanical	186 *	60	–	16 **	–	17 **	57	–	22 **	–	26 **	24 *	25 *
Auto technology	55 **	36 **	–	34 **	–	36 **	59	–	–	–	–	–	20 **
Auto mechanics	–	34 **	–	37 **	–	40 **	65	–	–	–	–	–	20 **
Heavy equipment mechanics	–	83 *	–	-	-	-	50 **	-	–	–	–	23 **	–
Small engine mechanics	–	–	-	-	–	-	–	-	–	–	-	-	-
Other mechanical engineering technologies	–	76	–	–	-	–	78	–	–	-	–	30 **	26 **
Engineering-architectural and construction	308	52	–	22 *	17 **	27 *	37 *	–	25 *	28 *	35 *	15 *	23 **
Architectural design/drafting technology	–	–	-	–	–	–	83	–	-	-	-	-	–
Construction or building technologies	234	50	–	25 **	19 **	30 **	30 *	–	29 *	33 *	43 *	15 **	–
Woodworking and carpentry	166 *	44 *	–	30 **	–	38 **	34 **	–	–	32 **	33 **	–	–
Other construction or building technologies	–	67 **	–	-	–	-	–	-	–	–	-	-	-
Welding technologies	–	66 *	–	–	–	–	–	–	–	–	–	–	-
Engineering-industrial	343	57	–	33 *	–	35 *	43	–	22 *	25 *	30 *	17 *	20 **
Industrial design/operations technologies	–	–	–	–	–	-	-	-	–	76 **	-	-	-
Machinist	61 **	62 *	-	–	-	–	55 **	-	–	–	–	–	–
Manufacturing technologies	242	62	–	30 **	–	32 **	46 *	–	22 **	–	28 **	17 *	18 **
Clothing/other fabric products	173 *	54 *	–	35 **	–	37 **	43 *	–	–	–	–	–	–
Electrical/electronic equipment and related	57 **	78	-	–	-	–	–	-	–	–	50 **	–	–
Mathematics and computer science	598	72	14 **	8 **	–	8 **	63	16 *	11 *	10 **	12 *	21	28
Computer science	582	71	14 **	8 **	–	9 **	62	17 *	11 *	10 **	13 *	21	28
Computer programming	145 *	67	–	–	-	–	60	30 **	1 **	–	–	20 **	30 **
Computer sciences-system design and analysis	273	69	–	–	–	–	63	–	16 **	–	18 **	21	28 *
Computer technologies	74 **	75	–	-	-	-	53 **	–	–	-	–	–	–
Data processing	–	92	-	-	-	-	74	-	–	–	–	21 **	24 **
Transportation technologies	62 **	–	–	–	–	–	–	–	–	-	–	–	-
Motor transportation	62 **	–	–	–	–	–	–	–	–	-	–	–	-
Driver training/education	62 **	–	–	–	–	–	–	–	–	-	–	–	-
Health sciences and related	3,304	53	36	4 *	5 *	5 *	60	28	4 *	8	4 *	22	24
Diagnostics and treatment medical technologies	508	79	12 **	–	–	–	66	19 *	–	13 **	–	21	23
Dental hygiene/assistant technologies	455	79	11 **	–	–	–	64	19 *	–	14 **	–	21	23
Nursing	2,779	49	41	4 *	6 *	4 *	59	30	4 *	8	4 *	23	24
Diploma nursing	335	40	52	-	–	-	42	53	-	–	-	29 **	33 *
Nursing aide/orderly	2,288	51	38	5 *	6 *	5 *	63	25	4 *	8 *	5 *	22	24
Nursing refresher	81 **	–	74	-	-	-	–	49 **	-	–	-	-	–
Other specialized nursing	56 **	53 **	–	–	-	–	–	–	–	-	–	–	–
Humanities and related	72 **	66 *	–	–	-	–	73 *	-	–	-	–	–	–
Journalism	–	87	-	–	-	–	100	-	-	-	-	-	–
Natural sciences and primary industries	438	54	11 **	23	13 **	26	44	–	28	20	35	17	18
Environmental and conservation technologies	–	100	-	-	-	-	–	-	–	-	–	–	-
Natural sciences	240	49	–	21 **	16 *	26 *	38	–	34 *	24 *	44	16 *	18 *
Agriculture technologies/sciences/engineering	–	–	-	-	–	-	–	-	-	–	-	-	-
Animal sciences	73 **	–	–	–	–	–	37 **	-	–	–	52 **	–	–
Other animal sciences	59 **	–	–	–	–	–	–	-	–	–	64 **	-	-
Plant sciences	142 *	56	14 **	19 *	–	21 *	36	–	36	21 *	46	18 *	18 **
Crops and horticulture	–	80	–	–	-	–	61 *	-	–	–	–	–	–
Landscaping	–	54 *	–	–	–	33 **	–	–	46 *	–	60 *	20 **	-
Primary industries (excluding agriculture)	–	72 *	-	–	-	–	54 **	-	–	–	–	–	–
Forestry technologies	–	68 *	-	–	-	–	62 **	-	–	–	–	–	–

Table B-1C. Characteristics of 1986 female trade/vocational graduates by field of study, March 1991

Trade/vocational graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Resource processing technologies	155 *	55	–	27 *	–	30 *	51	–	–	17 **	–	16 *	18 *
Food processing technologies	125 *	56	–	24 **	–	27 *	49	–	–	21 **	–	16 *	16 **
Meat processing	107 *	58	–	18 **	–	21 **	49 *	–	–	22 **	–	16 *	18 *
Forest products processing	–	–	–	–	-	–	80 *	–	-	-	-	-	-
Wood products processing	–	–	–	–	-	–	80 *	–	-	-	-	-	-
Social sciences and services	1,493	59	18	10 *	10 *	11 *	58	19	9 *	14	11 *	17	21
Educational and counselling services	190 *	72	–	–	–	–	70	–	–	–	–	15 **	17 *
Educational services	170 *	71	–	–	–	–	69	–	–	–	–	15 **	16 *
Education-early childhood	113 *	74	–	-	–	-	67 *	–	–	–	–	16 **	–
Teacher training	–	79 *	-	-	–	-	73 *	–	-	–	-	–	–
Personal development	322	49	15 **	16 **	20 **	20 **	54	–	–	20 **	–	20 **	21 *
Occupational skills development	210 *	53	–	–	–	–	57	–	–	–	–	20 **	22 *
Orientation courses	104 *	38 **	–	–	–	–	46 **	–	–	–	–	–	–
Protection and correction services	–	–	-	61 **	-	61 **	90	-	-	–	-	-	–
Correctional technologies	–	–	-	63 **	-	63 **	89	-	-	–	-	-	-
Recreation and sport	68 **	88	–	-	-	-	63 **	-	–	–	–	–	–
Travel and tourism	59 **	86	–	-	-	-	71 *	-	–	–	–	–	–
Travel counsellor/agent	59 **	86	–	-	-	-	71 *	-	–	–	–	–	–
Social services	881	59	24	7 **	7 **	8 **	55	24	9 **	11 *	10 **	17	23
Care of the disabled	–	53 *	–	–	-	–	61 *	34 **	–	-	–	17 **	–
Child care services	162 *	69	-	–	–	–	69	–	–	–	–	17 **	18 **
Domestic science and related	292	44 *	36 *	–	–	–	36 *	36 *	–	–	–	15 **	21 **
Social services/welfare technologies	283	73	18 **	–	–	–	72	–	–	–	–	23 *	26 *

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1D. Characteristics of 1986 career/technical graduates by field of study, March 1991

Career/technical graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	62,398	82	8	7	3	7	80	7	7	5	8	26	30
Arts	4,781	79	8 *	9 *	--	10 *	75	7 *	10 *	7 **	11 *	22	25
Commercial and promotional arts	897	91	--	--	--	--	87	--	--	--	--	24 *	26 *
Advertising	551 *	87	--	--	--	--	86	--	--	--	--	23 *	27 **
Commercial arts	196 **	97	-	--	-	--	81 *	-	--	-	--	--	--
Other commercial and promotional arts	--	98	-	--	-	--	96	--	-	--	-	--	--
Creative and design arts	668 *	67	--	--	--	--	57 *	--	--	--	--	17 **	25 **
Fashion arts	184 **	94	--	--	-	--	54 **	--	--	--	--	--	--
Interior decorating	214 **	93	--	--	--	--	80 *	--	--	--	--	--	--
Other creative and design arts	271 **	--	-	--	--	64 **	--	-	--	--	--	-	--
Fine arts	777	68	23 **	--	--	--	64	--	--	--	--	17 **	25 *
Performing arts/theatre arts	301 **	78	--	--	--	--	68 *	--	--	--	--	--	--
Dance	--	94	--	--	-	--	--	--	-	-	-	--	--
Drama	--	--	--	-	--	-	--	--	-	-	-	-	-
Music	--	70	30 **	-	-	-	67	--	--	--	--	19 **	--
Handicrafts	--	83	--	-	--	-	79 *	-	-	--	-	-	8 **
Sculpture and painting	--	--	--	--	-	--	--	--	--	-	--	--	--
Other fine arts	--	--	--	--	--	--	62 **	--	--	--	--	-	--
Graphic and audio-visual arts	1,248	79	--	--	--	--	78	--	--	--	--	21 *	24 *
Photography	270 **	54 **	--	--	--	--	68 *	--	--	--	--	--	--
Printing and publishing	--	95	--	-	-	-	--	--	-	--	-	--	--
Other graphic and audio-visual arts	612 *	87	--	--	-	--	81	--	--	--	--	19 **	23 **
Mass communications	902	85	--	--	--	--	81	--	--	--	--	26 *	30 *
Cinematography/film production/animation	--	100	-	-	-	-	100	-	-	-	-	-	-
Radio and television broadcasting	591 *	84	--	--	--	--	75	--	--	--	--	21 *	29 **
Other mass communications studies	191 **	81	--	--	--	--	92	--	-	--	--	--	--
Personal arts	--	85	--	--	-	--	89	--	--	-	--	--	--
Barbering/hairdressing	--	75	--	--	-	--	81	--	--	-	--	14 **	20 **
Arts and sciences	191 **	--	--	--	--	--	78 *	--	-	-	-	--	--
Business and commerce	17,018	83	6	7	4	7	83	5	6	5	7	22	26
Management and administration	9,147	83	6	7	4 *	7	83	5	8	4	8	23	28
Financial management	3,545	83	6 *	6 *	5 **	6 *	83	5 *	7 *	5 *	7 *	22	26
Accounting	1,996	88	--	5 **	--	5 **	85	--	7 *	3 **	7 *	23	29
Assessment/appraisal	--	72	--	--	-	--	81	--	--	-	--	--	--
Other financial management	1,153	79	12 **	--	--	--	78	--	8 **	7 **	8 **	20	25
Industrial management	4,364	83	6	9	3 *	9	81	6	8	4 *	8	23	28
Health-care facilities management	--	100	-	-	-	-	100	-	-	-	-	--	--
Hotel/restaurant/resort management	678 *	88	--	--	--	--	77	--	--	--	--	20	24
Other institutional management	--	92	--	--	-	--	80	--	--	--	--	--	--
Management and administration-business and commerce	3,702	82	6 *	8	4 **	9	85	3 *	8	4 *	8	23	30
Merchandising and sales	2,056	80	7 *	10 *	3 **	10 *	83	6 *	7 *	4 *	8 *	23	29
Secretarial science	4,870	84	6	6	4 *	6	83	6	4 *	7	4 *	21	24
Business machine operations	545 *	87	--	--	--	--	84	--	--	--	--	23	28
Word processing	324 *	96	-	--	-	--	95	-	-	--	-	23 *	28
Other business machine operations	208 **	78	--	--	--	--	73	--	--	--	--	22 *	30 *
Secretary-accounting, bookkeeping	--	100	-	-	-	-	72 *	--	-	--	-	--	--
Secretary-general	2,835	82	7	7 *	4 *	7 *	81	8 *	5 *	7	5 *	19	22
Secretary-legal	643 *	89	--	--	--	--	85	--	--	--	--	22	26
Court reporting	--	100	-	-	-	-	100	-	-	-	-	--	--
Legal secretary/law clerk	531 *	89	--	--	--	--	85	--	--	--	--	22	27
Secretary-medical	761	83	--	--	--	--	87	--	--	7 **	--	23	25
Health records technology	--	77	--	--	--	--	85	--	-	--	-	24 **	28 **
Medical secretary	296 **	82	--	--	--	--	81	--	--	--	--	22 *	24 *

Table B-1D. Characteristics of 1986 career/technical graduates by field of study, March 1991

Career/technical graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Service industry technologies	783	81	8 **	7 **	–	7 **	81	8 **	7 **	–	7 **	23	25
Food preparation	292 **	78	–	–	–	–	76	–	–	–	–	19	23
Baking	–	80 *	–	-	-	-	60 **	–	-	-	-	–	-
Cooking	214 **	81	–	–	–	–	81	–	–	–	–	19 *	23 *
Food preparation-other	–	75 *	–	-	-	-	–	–	-	-	-	-	-
Food serving	–	84	–	–	-	–	76	–	-	–	-	19 **	–
Engineering and applied sciences	16,395	87	3	8	2	8	86	2	8	3	9	27	33
Chemical technologies	739	83	5 **	10 *	–	10 *	83	–	8 *	7 *	8 *	27	31
Biochemical technologies	–	72	–	–	–	–	88	–	–	–	–	26 *	28 *
Chemical engineering technologies	305 **	81	–	15 **	–	15 **	80	–	10 **	9 **	11 **	27	32
Chemistry	–	87	–	–	–	–	79	–	–	–	–	29 *	28 *
Industrial chemical technologies	–	94	–	-	-	-	91	-	-	–	-	31 **	37 **
Plastics and fiberglass	–	89	–	-	-	-	83	-	-	–	-	–	–
Electrical/electronic engineering technologies	4,745	90	2 **	6	2 **	7	87	–	8	3 *	9	27	34
Avionics technologies	–	100	-	-	-	-	76 **	-	–	-	–	–	-
Electrical/electronic engineering technologies	3,656	89	2 **	7	2 **	7	87	–	8	3 *	9	27	34
Electrical	458 *	88	–	–	–	–	88	–	–	–	–	27	36
Electronics	1,976	88	–	8 *	–	9 *	85	–	10 *	5 **	10 *	26	33
Other electrical/electronic technologies	–	91	-	–	–	–	91	-	-	–	-	23 **	32 **
Electro-mechanical technologies	545 *	92	–	–	-	–	86	–	–	–	–	28	35
Electric motors	–	100	-	-	-	-	100	-	-	-	-	-	–
Marine electronics technologies	–	–	-	–	–	–	64 **	-	–	-	–	–	–
Telecommunications technologies	444 *	97	–	–	-	–	87	–	–	–	–	30	35
Radio and television	193 **	99	–	-	-	-	77 *	–	–	–	–	23 *	30 *
Other telecommunications electronics	–	95	-	–	-	–	90	–	–	-	–	29	37
Engineering technologies	6,472	86	3	9	2	9	84	2	10	4	10	28	33
Engineering-general	2,272	83	3 *	11	3 *	12	84	2 **	11	3 *	11	27	34
Civil technologies	846	81	–	12	4 **	12	84	–	12	–	13	26	32
Bridge construction	–	100	-	-	-	-	100	-	-	-	-	–	-
Road construction	–	46 *	-	46 *	-	46 *	62	-	30 **	–	33 **	28 **	27 **
Drafting	442 *	86	–	11 *	–	11 *	88	-	10 *	–	10 *	24	32
Cartography	–	77	–	–	–	–	85	-	–	-	–	20 *	28 *
Engineering design or drafting	217 **	91	-	7 **	–	7 **	91	-	6 **	–	6 **	24	32
Mechanical drafting	–	86	-	–	-	–	86	-	–	-	–	29 *	30 *
Instrumentation	485 *	87	–	8 **	–	8 **	87	–	–	–	–	33	38
Physics	–	68 *	–	–	-	–	100	-	-	-	-	–	–
Surveying	234 **	77	–	15 **	–	16 **	72	–	19 *	–	20 *	28	33
Other engineering technologies	–	80	–	–	-	–	71	–	–	–	–	28 *	26 **
Engineering-mechanical	1,842	87	2 **	8	2 **	8	84	3 **	8	5 *	9	28	33
Agricultural equipment mechanics	–	94	-	–	-	–	91	–	–	–	–	21	25
Aircraft mechanics	191 **	88	-	–	–	–	85	–	–	–	–	30	36 *
Auto technology	223 **	83	–	–	–	–	83	-	–	–	–	22 *	30 *
Auto mechanics	–	81	-	–	–	–	81	-	–	–	15 **	26 *	28
Heavy equipment mechanics	–	88	–	–	–	–	87	-	–	–	–	23	30
Marine mechanics	–	88	-	-	–	-	51 **	–	–	-	–	32 **	–
Small engine mechanics	–	66	–	–	–	–	74	-	–	–	–	28 *	30 *
Other mechanical engineering technologies	752	92	–	5 *	–	6 *	86	–	7 *	4 **	7 *	29	35
Engineering-architectural and construction	1,464	88	2 **	8	–	8	83	2 **	11	4 *	12	27	32
Architectural design/drafting technology	787	91	–	7 *	–	7 *	83	–	10 *	4 **	11 *	26	30
Construction or building technologies	466 *	85	–	7 **	–	8 **	82	–	12 *	–	12 *	28	34
Woodworking and carpentry	–	70	–	16 **	–	17 **	66	–	–	–	19 **	22 *	31 *
Other construction or building technologies	315 *	92	–	–	–	–	90	–	–	–	–	29	35
Naval architecture/construction technologies	–	93	-	–	-	–	86	-	–	-	–	–	–

Table B-1D. Characteristics of 1986 career/technical graduates by field of study, March 1991

Career/technical graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Welding technologies	–	74	–	18 **	-	18 **	86	-	–	-	–	31 *	35 *
Engineering-aeronautical	–	100	-	-	-	-	100	-	-	-	-	–	–
Aeronautical engineering technologies	–	100	-	-	-	-	100	-	-	-	-	–	–
Engineering-industrial	832	89	–	6 **	–	6 **	84	–	10 *	–	11 *	29	34
Industrial design/operations technologies	–	96	–	-	-	-	74	–	–	–	–	29 *	35 *
Machinist	205 **	91	–	–	-	–	93	–	–	-	–	27	35
Manufacturing technologies	377 *	84	–	10 **	–	11 **	82	–	12 **	–	12 **	29	33
Aircraft	–	60 **	–	-	–	-	–	–	–	–	–	-	-
Automobile/mechanical and related	179 **	92	-	–	-	–	94	-	–	-	–	29	34
Electrical/electronic equipment and related	–	67 **	-	–	–	–	83	-	–	-	–	-	–
Rubber, glass and plastics	–	71 *	-	–	–	–	71 *	-	–	–	–	-	–
Other manufacturing	–	75 **	-	–	-	–	80 *	-	–	-	–	-	–
Quality control	–	90	–	-	-	-	78	-	–	–	-	-	-
Other industrial engineering technologies	–	85	-	–	-	–	100	-	-	-	-	–	–
Mathematics and computer science	4,077	87	3 *	6	3 *	7	90	3 *	5 *	2 **	5 *	27	33
Computer science	4,054	87	3 *	6	3 *	7	90	3 *	5 *	2 **	5 *	27	33
Computer programming	1,968	86	4 **	5 *	4 **	5 *	91	–	5 **	–	5 **	27	32
Computer sciences-system design and analysis	1,179	88	–	8 **	–	8 **	91	–	–	–	–	28	33
Computer technologies	394 *	88	–	–	-	–	87	–	–	-	–	30	38
Data processing	424 *	94	–	–	-	–	89	–	–	–	–	28	34
Transportation technologies	326 *	75	–	–	10 **	–	73	–	14 **	–	14 **	26	35
Air transportation	191 **	75	–	–	–	–	74	–	–	–	–	26 *	35 *
Aviation and flight technologies	–	75	–	–	–	–	75	–	–	–	–	26 *	36 *
Flight attendants	–	60 **	–	–	-	–	100	-	-	-	-	-	-
Motor transportation	–	80	–	-	–	-	90	–	-	-	-	–	–
Driver training/education	–	–	–	-	–	-	75 *	–	-	-	-	-	-
Marine transportation	–	67 *	-	–	–	–	59 *	–	–	–	–	–	–
Nautical science/navigation technologies	–	58 *	-	–	–	–	57 **	-	–	–	–	–	–
Health sciences and related	11,032	78	15	4	2 *	4	73	18	4	5	4	31	34
Diagnostics and treatment medical technologies	3,403	79	14	5 *	–	5 *	76	12	6 *	6 *	7 *	29	34
Chiropractic technologies	187 **	100	-	-	-	-	92	–	-	-	-	49 **	100
Combined laboratory and x-ray technologies	–	50 *	38 **	–	–	–	50 *	44 **	-	–	-	–	–
Dental hygiene/assistant technologies	1,086	80	10 **	–	–	–	68	14 **	–	–	–	24	32
Emergency para-medical technologies	225 **	93	-	–	-	–	100	-	-	-	-	37 *	37 *
Medical laboratory technologies	913	73	21 *	–	–	–	76	12 **	–	–	–	31	34
Pharmacy technologies	–	86	–	-	-	-	91	–	-	–	-	27 **	–
Physiotherapy	–	73	–	-	–	-	67 *	–	–	–	–	–	–
X-ray/radiology/nuclear medicine technology	503 *	72	19 **	–	–	–	74	18 **	–	–	–	29 *	30 *
Other diagnostic and treatment medical technologies	–	86	–	-	-	-	71 *	–	–	-	–	29 **	–
Medical equipment and prosthetics	280 **	89	–	-	-	-	83	-	–	–	–	30 **	32 **
Dental appliances	–	100	-	-	-	-	100	-	-	-	-	–	–
Optical prosthetics/lenses	–	91	-	-	-	-	82	-	–	–	–	–	–
Orthopaedic prosthetics	–	100	-	-	-	-	100	-	-	-	-	-	–
Nursing	6,905	79	16	3 *	2 **	3 *	73	21	3 *	4 *	3 *	33	34
Diploma nursing	4,260	81	16	3 **	1 **	3 **	71	23	3 *	3 **	3 *	31	34
Nursing aide/orderly	585 *	68	16 **	–	–	–	77	–	–	6 **	–	23 *	25 *
Nursing refresher	–	69	–	-	–	-	59 *	–	-	–	-	–	–
Psychiatric or mental health nursing	–	74	11 **	–	–	–	82	8 **	–	–	–	31	32 *
Public health nursing	–	100	-	-	-	-	66 **	–	-	–	-	–	-
Other specialized nursing	228 **	52 *	39 **	-	–	-	45 *	48 *	-	–	-	–	–
Other health related technologies	393 *	59	23 **	–	–	–	55	23 **	–	–	–	26	30 *
Biological sciences/technologies	–	83	–	–	–	–	70	–	–	–	–	28 *	37 *
Dietetics/dietary technologies	–	43 **	39 **	–	–	–	31 **	49 **	–	–	–	–	27 **

Table B-1D. Characteristics of 1986 career/technical graduates by field of study, March 1991

Career/technical graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Health education	–	–	-	–	-	–	100	-	-	-	-	–	–
Mental health technologies	–	89	–	-	-	-	52 **	–	–	–	–	27 **	25
Public/environmental health	–	–	-	67 **	-	67 **	–	-	–	-	–	-	-
Humanities and related	1,061	77	–	–	–	–	67	–	–	–	–	21 *	27 *
Journalism	249 **	88	-	–	–	–	72	–	–	–	–	–	24 **
Languages	217 **	91	–	–	-	–	66 **	–	–	–	–	–	–
English as a second language	–	79 *	-	–	-	–	79 *	–	–	-	–	-	-
English literature, grammar, composition	–	94	–	–	-	–	63 **	-	–	–	–	–	–
Library science	448 *	72	–	–	–	–	71	–	–	–	–	20 **	25 **
Library/documentation sciences	374 *	79	–	–	–	–	70 *	–	–	–	–	–	25 **
Natural sciences and primary industries	3,360	81	3	13	2 *	14	73	4	16	7	17	24	30
Environmental and conservation technologies	653 *	80	–	15	–	15	77	–	16 *	5 **	17 *	28	32
Environmental control/protection technologie	312 *	80	–	15 *	–	16 *	79	-	15 *	–	16 *	29	34
Land resources technologies	–	96	–	-	-	-	54 *	–	–	-	–	20 **	–
Water science technologies	–	85	–	–	-	–	90	-	–	-	–	34 *	38 *
Wildlife and forest conservation technologies	–	69	–	25 **	-	25 **	76	-	–	–	–	23 *	31 *
Other environmental and conservation technologies	–	100	-	-	-	-	75 **	-	-	–	-	-	-
Natural sciences	1,522	84	3 *	8	3 *	9	73	6 *	12	9	13	21	25
Agriculture	–	90	–	–	–	–	75	–	16 **	–	17 **	23 *	28
Agriculture business	200 **	85	-	13 **	–	13 **	74	–	16 **	-	16 **	24	30
Agriculture technologies/sciences/engineering	222 **	84	–	–	–	–	76	–	12 **	–	13 **	23	25
Animal sciences	539 *	82	–	7 **	6 **	8 **	70	8 *	10 *	12 *	12 *	19	23
Cattle technologies(beef and dairy)	–	100	-	-	-	-	80 *	-	–	-	–	–	-
Equine studies/horse husbandry	–	68	–	–	–	–	52	–	–	31 **	–	15 *	22 **
Veterinary technologies/animal health	204 **	85	–	–	–	–	81	–	–	13 **	–	19	25
Zoology	–	86	–	–	-	–	57 *	–	36 **	-	36 **	23 *	18 **
Other animal sciences	–	78	-	–	–	–	56 **	–	–	-	–	–	–
Plant sciences	384 *	87	–	7 **	–	8 **	73	–	10 **	11 **	12 **	23	28
Crops and horticulture	–	95	–	–	-	–	88	-	–	–	–	23	29
Landscaping	–	88	–	-	–	-	75	–	–	–	–	26 *	30 *
Soils, pesticides, fertilizer	–	72 *	-	–	-	–	71 *	-	–	–	–	–	27 **
Primary industries (excluding agriculture)	930	74	–	22	–	23	67	4 **	23	6 *	24	28	30
Forestry technologies	533 *	72	–	24	–	24	61	–	30	–	31	26	30
Mining technologies	221 **	76	–	22 *	–	22 *	74	-	17 **	–	19 **	29	32
Drilling and extractive technologies	–	86	-	–	–	–	90	-	–	-	–	–	40 **
Geology and prospecting	–	76	–	–	-	–	78	-	–	–	–	26 *	28 *
Petroleum resources technology	–	78	–	16 **	-	16 **	76	–	–	–	–	31	35
Resource processing technologies	255 **	88	–	9 **	–	10 **	79	–	13 **	–	14 **	26	32
Food processing technologies	–	89	–	–	-	–	80	–	–	–	–	23 *	30 *
Marine products processing	–	50 **	–	–	-	–	–	–	–	–	–	–	31 **
Meat processing	–	100	-	-	-	-	100	-	-	-	-	23 *	35 *
Other food processing technologies	–	90	-	–	-	–	74 *	–	–	-	–	–	–
Forest products processing	–	89	-	–	-	–	46 **	-	–	–	48 **	35 **	–
Wood products processing	–	84	-	–	-	–	–	-	–	–	–	–	-
Metal processing	–	79	-	–	–	–	93	-	-	–	-	27 **	35 **
Processing of other metals	–	79	-	–	–	–	93	-	-	–	-	27 **	35 **
Petroleum refining technologies	–	100	-	-	-	-	91	-	–	-	–	28 **	–
Social sciences and services	8,453	78	11	6	4	7	79	9	7	6	7	23	27
Educational and counselling services	2,697	74	14	6 *	7 *	6 *	72	14	6 **	9	6 **	20	24
Counselling services technologies	189 **	50 **	-	–	45 **	–	57 *	–	–	–	–	–	27 **
Counsellor-education/career/vocational	–	–	-	–	67 *	–	–	-	–	–	–	-	–
Educational services	2,508	75	15	6 *	4 **	6 *	73	15	4 *	8 *	5 *	20	24
Education-early childhood	1,224	86	6 **	5 **	–	5 **	76	10 *	–	11 *	–	19	23

Table B-1D. Characteristics of 1986 career/technical graduates by field of study, March 1991

Career/technical graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Education-handicapped	–	86	–	-	–	-	93	-	-	–	-	22 **	25 **
Teacher training	578 *	70	20 *	6 **	–	6 **	65	25 *	7 **	3 **	8 **	21	25
Teachers aide/educational support	–	49 *	–	–	–	–	65	–	–	–	–	–	21 **
Personal development	–	70	–	–	-	–	75	-	–	-	–	–	–
Communications skills development	–	69 *	–	–	-	–	91	-	–	-	–	–	–
Protection and correction services	1,774	87	6 **	6 *	–	7 *	94	–	3 **	–	3 **	29	37
Correctional technologies	216 **	86	–	–	-	–	93	-	–	-	–	29 *	32 *
Para-legal technologies	–	71 *	–	–	-	–	65 *	–	–	–	–	–	–
Police technologies/criminology	797	90	–	–	–	–	98	-	–	–	–	29	40
Protection technologies	669 *	85	–	–	–	–	93	–	–	–	–	29	35
Fire	–	100	-	-	-	-	100	-	-	-	-	–	–
Security	594 *	83	–	–	–	–	92	–	–	–	–	27	35
Recreation and sport	1,490	82	10 *	5 **	–	5 **	82	6 **	9 *	–	9 *	20	26
Physical education instruction	–	58 *	–	–	–	–	60 *	–	–	–	–	–	–
Recreation leadership/leisure services	728	79	10 **	7 **	–	7 **	79	–	11 **	–	11 **	23	30
Travel and tourism	624 *	91	–	–	–	–	91	–	–	–	–	19	25
Guiding	–	60 **	-	-	–	-	–	-	–	–	–	-	-
Parks/forest/wildlife recreation	–	94	-	–	-	–	74 *	-	–	-	–	–	–
Travel counsellor/agent	403 *	89	–	-	–	-	92	–	–	–	–	19	24
Social sciences	–	74	–	–	-	–	74	-	-	–	-	23 **	27 *
Geography	–	86	-	–	-	–	74 *	-	-	–	-	–	–
Other social sciences	–	75 *	–	–	-	–	82 *	-	-	–	-	–	–
Social services	2,285	76	14	7 *	4 **	7 *	74	11	9 *	6 *	10 *	23	27
Care of the disabled	180 **	82	–	–	–	–	70	–	–	–	–	27 *	27 *
Child care services	796	88	–	7 **	–	7 **	83	–	–	5 **	–	21	25
Community planning/urban design	–	–	–	–	–	–	–	-	–	-	–	-	-
Domestic science and related	–	–	–	-	–	-	–	75 **	-	-	-	-	-
Gerontology	–	61 *	39 **	-	-	-	53 *	–	–	-	–	–	–
Social services/welfare technologies	1,010	69	17 *	9 **	–	9 **	71	11 **	11 **	8 **	12 **	23	28
Other social services	–	100	-	-	-	-	80 *	–	-	-	-	–	–

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1E. Characteristics of 1986 male career/technical graduates by field of study, March 1991

Career/technical graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	27,719	85	4	8	2	8	85	3	9	3	9	27	33
Arts	1,980	85	–	–	–	–	80	–	–	–	–	23	29
Commercial and promotional arts	354 *	96	–	–	–	–	95	–	–	–	–	23 **	–
Advertising	230 **	96	–	–	–	–	96	–	–	–	–	–	–
Commercial arts	–	94	-	–	-	–	94	-	–	-	–	–	–
Creative and design arts	–	100	-	-	-	-	100	-	-	-	-	–	–
Fine arts	257 **	71	–	–	–	–	45 **	–	–	–	–	–	30 **
Performing arts/theatre arts	–	80	–	-	-	-	–	–	–	–	–	–	–
Music	–	66 *	–	-	-	-	66 *	–	–	–	–	–	–
Sculpture and painting	–	85	–	–	-	–	–	–	–	-	–	-	–
Other fine arts	–	–	–	-	–	-	–	–	–	-	-	-	-
Graphic and audio-visual arts	651 *	80	–	–	-	–	78	–	–	–	–	23 *	28 **
Photography	–	–	–	–	-	–	61 **	–	–	–	–	–	–
Printing and publishing	–	100	-	-	-	-	–	–	-	–	-	–	-
Other graphic and audio-visual arts	230 **	83	–	–	-	–	83	–	–	-	–	–	–
Mass communications	598 *	86	–	–	–	–	89	–	–	–	–	27 **	29 *
Cinematography/film production/animation	–	100	-	-	-	-	100	-	-	-	-	-	-
Radio and television broadcasting	369 *	87	-	–	–	–	83	–	–	–	–	21 **	–
Other mass communications studies	–	74 *	–	–	–	–	99	–	-	-	-	–	–
Arts and sciences	–	–	–	–	–	–	92	–	-	-	-	-	-
Business and commerce	5,557	83	4 *	10	3 *	10	85	3 *	9	2 *	9	26	31
Management and administration	4,031	83	4 *	10	3 **	10	85	2 **	11	2 **	11	26	32
Financial management	1,440	81	5 **	9 *	–	9 *	84	–	10 *	–	10 *	24	30
Accounting	824	88	–	–	–	–	86	–	10 **	–	10 **	24	32
Assessment/appraisal	–	91	–	–	-	–	95	–	-	-	-	28 *	–
Other financial management	412 *	75	–	–	–	–	76	–	–	–	–	24 *	27 *
Industrial management	2,028	85	4 **	10 *	–	10 *	85	5 **	8 **	–	8 **	27	32
Hotel/restaurant/resort management	257 **	94	–	5 **	-	5 **	84	–	–	–	–	23 **	30 **
Other institutional management	–	100	-	-	-	-	77 *	-	–	-	–	–	–
Management and administration-business and commerce	1,751	84	–	10 *	–	11 *	86	–	10 *	–	10 *	26	32
Merchandising and sales	993	85	–	10 **	–	10 **	88	–	–	–	–	27	34
Secretarial science	–	67	–	–	–	–	79	–	–	–	–	27 **	30 **
Business machine operations	–	51 **	–	–	-	–	71 *	–	–	–	–	–	–
Other business machine operations	–	–	–	–	-	–	77 *	–	–	–	–	–	–
Service industry technologies	335 *	79	–	–	–	–	86	–	–	–	–	26 *	28
Food preparation	–	82	–	–	–	–	80	–	–	–	–	22 *	23 *
Cooking	–	83	–	–	–	–	88	-	–	–	–	22 *	23 *
Food serving	–	–	–	–	-	–	75 **	–	-	-	-	-	-
Engineering and applied sciences	13,402	88	3	7	2	7	86	2	9	3	9	28	34
Chemical technologies	415 *	85	–	10 **	–	10 **	85	–	9 **	–	9 **	29	33
Biochemical technologies	–	76	–	–	–	–	90	-	–	-	–	27 **	–
Chemical engineering technologies	185 **	80	–	15 **	–	15 **	79	–	–	–	–	29 *	33
Chemistry	–	87	–	–	-	–	75	–	–	–	–	29 **	32 **
Industrial chemical technologies	–	100	-	-	-	-	100	-	-	-	-	37 **	42 **
Plastics and fiberglass	–	100	-	-	-	-	100	-	-	-	-	–	–
Electrical/electronic engineering technologies	4,459	90	2 **	6	2 **	6	88	1 **	8	3 *	8	27	35
Avionics technologies	–	100	-	-	-	-	76 **	-	–	-	–	–	-
Electrical/electronic engineering technologies	3,489	89	–	7	2 **	7	87	–	8	3 *	8	27	34
Electrical	432 *	88	–	–	–	–	88	–	–	–	–	27	36
Electronics	1,893	87	–	9 *	–	9 *	85	–	9 *	5 **	10 *	26	33
Other electrical/electronic technologies	–	91	-	–	–	–	91	-	-	–	-	23 **	32 **
Electro-mechanical technologies	530 *	92	–	–	-	–	86	–	–	–	–	28	35
Marine electronics technologies	–	–	-	–	–	–	64 **	-	–	-	–	–	–

Table B-1E. Characteristics of 1986 male career/technical graduates by field of study, March 1991

Career/technical graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Telecommunications technologies	360 *	98	–	–	-	–	96	–	–	-	–	29	35
Radio and television	–	99	–	-	-	-	96	–	–	-	–	23 *	30 **
Other telecommunications electronics	–	97	-	–	-	–	92	–	–	-	–	29	36
Engineering technologies	5,830	87	3	8	2	8	84	2 *	10	3	11	28	34
Engineering-general	2,018	83	3 *	11	2 **	11	84	2 **	11	3 *	12	28	35
Civil technologies	774	82	–	12 *	–	12 *	83	–	13	–	14	26	33
Road construction	–	50 *	-	41 **	-	41 **	61 *	-	39 **	-	39 **	29 **	30 **
Drafting	325 *	87	-	11 **	–	11 **	86	-	12 **	–	12 **	26	32
Cartography	–	83	-	–	–	–	83	-	–	-	–	23 **	32 **
Engineering design or drafting	176 **	91	-	8 **	–	8 **	88	-	8 **	–	8 **	25	33
Mechanical drafting	–	82	-	–	-	–	82	-	–	-	–	30 *	33 *
Instrumentation	469 *	87	–	8 **	–	8 **	87	–	–	–	–	33	38
Physics	–	61 **	–	–	-	–	100	-	-	-	-	-	–
Surveying	198 **	81	–	12 **	–	12 **	72	–	19 *	–	20 *	28	33
Other engineering technologies	–	79	–	–	-	–	70	–	–	–	–	28 *	26 *
Engineering-mechanical	1,752	88	2 **	7	2 **	7	85	3 **	9	4 *	9	28	33
Agricultural equipment mechanics	–	94	-	–	-	–	93	–	–	–	–	21	28
Aircraft mechanics	187 **	87	-	–	–	–	85	–	–	–	–	30	35 *
Auto technology	215 **	84	–	–	–	–	85	-	–	–	–	22 **	30 *
Auto mechanics	–	82	-	–	–	–	83	-	15 **	–	15 **	26 *	28 *
Heavy equipment mechanics	–	90	–	–	–	–	86	-	–	–	–	24	30
Marine mechanics	–	86	-	-	–	-	–	–	–	-	–	–	-
Small engine mechanics	–	66	–	–	–	–	74	-	–	–	–	28 *	30 *
Other mechanical engineering technologies	715	92	–	5 **	–	5 **	86	–	7 *	4 **	7 *	29	35
Engineering-architectural and construction	1,257	89	3 **	7	–	7	84	–	12	3 **	12	27	32
Architectural design/drafting technology	630 *	94	–	6 **	-	6 **	84	–	11 *	–	11 *	26	30
Construction or building technologies	434 *	84	–	7 **	–	7 **	84	-	12 *	–	12 *	29	35
Woodworking and carpentry	–	71	–	–	–	–	67	-	–	–	20 **	23 *	32 *
Other construction or building technologies	293 **	91	–	–	–	–	92	-	–	-	–	29	36
Naval architecture/construction technologies	–	92	-	–	-	–	83	-	–	-	–	–	–
Welding technologies	–	77	–	–	-	–	88	-	–	-	–	31 *	35 *
Engineering-aeronautical	–	100	-	-	-	-	100	-	-	-	-	–	–
Aeronautical engineering technologies	–	100	-	-	-	-	100	-	-	-	-	–	–
Engineering-industrial	756	89	–	6 **	–	6 **	84	–	11 *	–	12 *	29	35
Industrial design/operations technologies	–	96	–	-	-	-	76	–	–	–	–	29 *	35 *
Machinist	194 **	92	–	–	-	–	92	–	–	-	–	28	35
Manufacturing technologies	361 *	87	–	10 **	–	10 **	82	–	12 **	–	13 **	29	34
Aircraft	–	60 **	–	-	–	-	–	–	–	–	–	-	-
Automobile/mechanical and related	–	91	-	–	-	–	94	-	–	-	–	29 *	35
Electrical/electronic equipment and related	–	80 *	-	–	-	–	80 *	-	–	-	–	-	–
Rubber, glass and plastics	–	71 *	-	–	–	–	71 *	-	–	–	–	-	–
Other manufacturing	–	75 **	-	–	-	–	75 **	-	–	-	–	-	-
Other industrial engineering technologies	–	82 *	-	–	-	–	100	-	-	-	-	–	–
Mathematics and computer science	2,418	88	3 **	6 *	3 **	6 *	91	–	5 *	–	5 *	28	34
Computer science	2,405	88	3 **	6 *	3 **	6 *	91	–	5 *	–	5 *	28	34
Computer programming	1,116	86	–	–	–	–	90	–	–	–	–	27	33
Computer sciences-system design and analysis	711	91	–	–	–	–	96	–	–	–	–	29	34
Computer technologies	307 **	85	–	–	-	–	87	–	–	-	–	31 *	37 *
Data processing	202 **	99	–	-	-	-	88	–	–	–	–	28 *	34 *
Transportation technologies	244 **	79	–	–	–	–	79	–	13 **	–	13 **	27	35
Air transportation	–	79	–	–	–	–	75	–	–	–	–	27 *	36 *
Aviation and flight technologies	–	76	–	–	–	–	76	–	–	–	–	26 *	37 *
Motor transportation	–	100	-	-	-	-	100	-	-	-	-	–	-

Table B-1E. Characteristics of 1986 male career/technical graduates by field of study, March 1991

Career/technical graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Marine transportation	–	68 *	-	–	–	–	78	-	–	-	–	–	–
Nautical science/navigation technologies	–	60 **	-	–	–	–	72 *	-	–	-	–	–	–
Health sciences and related	1,514	86	8 **	–	–	–	93	–	–	–	–	34	37
Diagnostics and treatment medical technologies	640 *	85	–	–	–	–	99	–	–	–	–	35	37
Chiropractic technologies	–	100	-	-	-	-	100	-	-	-	-	–	–
Emergency para-medical technologies	–	100	-	-	-	-	100	-	-	-	-	–	–
Medical laboratory technologies	240 **	75	–	–	–	–	98	–	-	-	-	35 *	36 *
X-ray/radiology/nuclear medicine technology	–	–	–	–	-	–	97	-	–	-	–	33 **	–
Medical equipment and prosthetics	–	100	-	-	-	-	83 *	-	–	-	–	–	–
Optical prosthetics/lenses	–	100	-	-	-	-	75 **	-	–	-	–	–	-
Nursing	672 *	86	–	–	–	–	92	–	–	–	–	31	35
Diploma nursing	498 *	87	–	–	–	–	90	–	-	–	-	29 *	35 *
Nursing aide/orderly	–	–	–	–	-	–	100	-	-	-	-	–	–
Psychiatric or mental health nursing	–	67 *	-	–	-	–	84	-	–	-	–	-	–
Other health related technologies	–	76	-	–	-	–	76	-	–	–	–	31 *	37 *
Biological sciences/technologies	–	94	-	–	-	–	86	-	-	–	-	31 **	38 **
Public/environmental health	–	–	-	67 **	-	67 **	–	-	–	-	–	-	-
Humanities and related	423 *	68	–	–	–	–	64 *	–	–	–	–	–	35 **
Journalism	–	93	-	–	–	–	65 **	–	–	–	–	–	–
Library science	–	–	–	–	-	–	–	–	-	–	-	-	-
Library/documentation sciences	–	–	–	–	-	–	–	–	-	–	-	-	-
Natural sciences and primary industries	2,331	83	2 **	15	–	15	76	3 *	17	4 *	18	27	30
Environmental and conservation technologies	503 *	79	–	17 *	–	17 *	78	–	16 *	–	17 *	29	33
Environmental control/protection technologie	247 **	77	–	18 *	–	19 *	78	-	17 *	–	18 *	30	35
Land resources technologies	–	100	-	-	-	-	53 **	–	–	-	–	–	–
Water science technologies	–	88	–	–	-	–	89	-	–	-	–	35 *	40 *
Wildlife and forest conservation technologies	–	65	–	30 **	-	30 **	80	-	–	–	–	26 **	31 *
Natural sciences	833	92	–	7 *	–	7 *	78	–	15	4 **	16	23	29
Agriculture	–	96	-	–	-	–	77	-	19 **	–	20 **	24 *	30 *
Agriculture business	–	84	-	–	–	–	76	–	19 **	-	19 **	24 *	33 *
Agriculture technologies/sciences/engineering	175 **	94	-	–	-	–	81	–	13 **	–	13 **	23	25
Animal sciences	–	90	–	–	-	–	73	–	21 **	–	21 **	23 *	25 *
Cattle technologies(beef and dairy)	–	100	-	-	-	-	75 **	-	–	-	–	-	-
Equine studies/horse husbandry	–	100	-	-	-	-	–	–	-	–	-	–	-
Veterinary technologies/animal health	–	100	-	-	-	-	100	-	-	-	-	22 **	29 **
Zoology	–	78	–	–	-	–	67 *	-	–	-	–	–	–
Plant sciences	242 **	93	-	–	-	–	81	–	–	–	–	26	30
Crops and horticulture	–	97	-	–	-	–	96	-	–	-	–	23 *	28 *
Landscaping	–	100	-	-	-	-	82	-	–	-	–	–	30 **
Soils, pesticides, fertilizer	–	83	-	–	-	–	67 **	-	–	–	–	–	–
Primary industries (excluding agriculture)	796	75	–	22	–	22	71	5 **	20	4 **	21	28	32
Forestry technologies	453 *	73	–	22	–	23	64	–	27	–	28	27	30
Mining technologies	191 **	78	-	20 *	–	20 *	80	-	15 **	–	16 **	29	32
Drilling and extractive technologies	–	86	-	–	–	–	90	-	–	-	–	–	40 **
Geology and prospecting	–	75	-	25 **	-	25 **	80	-	–	–	–	26 **	29 *
Petroleum resources technology	–	79	–	19 **	-	19 **	80	–	–	–	–	33	38
Resource processing technologies	199 **	88	–	11 **	-	11 **	78	–	14 **	–	15 **	28	34
Food processing technologies	–	84	–	–	-	–	74	–	–	–	–	26 *	33 *
Marine products processing	–	50 **	–	–	-	–	–	–	–	–	–	–	31 **
Meat processing	–	100	-	-	-	-	100	-	-	-	-	22 **	34 *
Other food processing technologies	–	90	-	–	-	–	–	–	–	-	–	–	-
Forest products processing	–	89	-	–	-	–	46 **	-	–	–	48 **	35 **	–
Wood products processing	–	84	-	–	-	–	–	-	–	–	–	–	-

Table B-1E. Characteristics of 1986 male career/technical graduates by field of study, March 1991

Career/technical graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Metal processing	–	83	-	–	-	–	100	-	-	-	-	28 **	–
Processing of other metals	–	83	-	–	-	–	100	-	-	-	-	28 **	–
Petroleum refining technologies	–	100	-	-	-	-	91	-	–	-	–	28 **	–
Social sciences and services	2,369	86	8 *	5 *	–	5 *	87	3 **	7 *	4 **	7 *	29	35
Educational and counselling services	261 **	72	26 **	–	-	–	62	22 **	–	–	–	26 *	30 *
Educational services	251 **	71	27 **	–	-	–	65	23 **	–	–	–	27 *	30 *
Teacher training	–	75	–	–	-	–	68 *	–	–	–	–	26 **	27 **
Personal development	–	69 **	–	–	-	–	87	-	–	-	–	-	–
Protection and correction services	1,164	92	–	–	-	–	99	–	–	–	–	31	39
Correctional technologies	–	87	–	–	-	–	100	-	-	-	-	36 **	35 **
Police technologies/criminology	582 *	93	–	–	-	–	100	-	–	-	–	30	40
Protection technologies	450 *	92	–	–	-	–	97	–	-	–	-	33	37
Fire	–	100	-	-	-	-	100	-	-	-	-	–	–
Security	374 *	90	–	–	-	–	97	–	-	–	-	31	37
Recreation and sport	515 *	83	–	–	–	–	80	–	14 **	–	15 **	24	30
Physical education instruction	–	100	-	-	-	-	72 *	-	–	–	–	–	-
Recreation leadership/leisure services	353 *	80	–	–	–	–	83	–	–	–	–	25	32
Travel and tourism	–	90	-	–	–	–	78	-	–	–	–	–	25 **
Guiding	–	60 **	-	-	–	-	–	-	–	–	–	-	-
Parks/forest/wildlife recreation	–	92	-	–	-	–	75 *	-	–	-	–	–	–
Travel counsellor/agent	–	100	-	-	-	-	100	-	-	-	-	–	–
Social sciences	–	87	-	–	-	–	100	-	-	-	-	–	–
Geography	–	81 *	-	–	-	–	100	-	-	-	-	–	–
Social services	370 *	79	–	–	–	–	73	–	–	–	–	27 *	30 *
Care of the disabled	–	63 **	–	–	-	–	–	–	–	–	–	–	-
Child care services	–	95	–	-	-	-	95	-	–	-	–	–	28 **
Community planning/urban design	–	–	–	–	–	-	–	-	–	-	–	-	-
Social services/welfare technologies	191 **	79	–	–	-	–	72	-	–	–	–	28 **	30 **

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1F. Characteristics of 1986 female career/technical graduates by field of study, March 1991

Career/technical graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	34,085	79	10	6	4	7	76	11	6	7	7	23	27
Arts	2,789	75	8 **	12 **	–	13 **	72	6 **	11 **	10 **	13 **	20	25
Commercial and promotional arts	541 *	88	–	–	–	–	81	–	–	–	–	27 *	26 **
Advertising	317 *	79	–	–	–	–	79	–	–	–	–	24 **	26 **
Commercial arts	–	100	-	-	-	-	–	-	–	-	–	–	–
Other commercial and promotional arts	–	100	-	-	-	-	96	–	-	-	-	–	-
Creative and design arts	591 *	63 *	–	–	–	–	51 *	–	–	–	–	17 **	24 **
Fashion arts	–	93	–	–	-	–	–	–	–	–	–	–	–
Interior decorating	182 **	92	–	–	–	–	76 *	–	–	–	–	–	–
Other creative and design arts	263 **	–	-	–	–	66 **	–	-	–	–	–	-	-
Fine arts	520 *	66	–	–	–	–	73	–	–	–	–	–	25 **
Performing arts/theatre arts	213 **	77 *	–	–	–	–	77 *	–	-	–	-	–	–
Dance	–	94	–	–	-	–	–	–	-	-	-	-	-
Drama	–	–	78 *	-	–	-	85	–	-	-	-	-	-
Music	–	79	–	-	-	-	69 *	–	-	–	-	–	–
Handicrafts	–	93	-	-	–	-	77 *	-	-	–	-	-	-
Other fine arts	-	-	78 *	–	–	-	78 *	–	–	-	–	-	-
Graphic and audio-visual arts	588 *	78	–	–	–	–	77	–	–	–	–	17 *	–
Photography	–	–	–	–	–	–	79	–	–	–	–	–	–
Other graphic and audio-visual arts	378 *	90	–	–	-	–	80	–	–	–	–	–	–
Mass communications	305 **	82	–	–	–	–	67 *	–	–	–	–	–	30 **
Radio and television broadcasting	221 **	80	–	–	-	–	63 *	–	–	–	–	–	–
Other mass communications studies	–	92	-	–	-	–	80	–	–	-	–	–	–
Personal arts	–	84	–	–	-	–	88	–	–	-	–	–	–
Barbering/hairdressing	–	73	–	–	-	–	80	–	–	-	–	16 **	20 **
Arts and sciences	–	–	–	-	-	-	69 **	–	-	-	-	–	-
Business and commerce	11,283	83	7	6	4	6	82	7	5	6	5	21	24
Management and administration	5,023	83	6	5	5 *	5	82	6 *	5 *	6	6 *	21	24
Financial management	2,061	84	6 **	4 **	–	4 **	82	8 **	4 **	6 **	5 **	21	25
Accounting	1,134	89	–	–	–	–	84	–	–	–	–	22	27
Assessment/appraisal	–	–	-	61 **	-	61 **	–	-	–	-	–	-	-
Other financial management	735	82	–	–	–	–	79	–	–	–	–	17	22
Industrial management	2,315	80	7 *	8 *	5 **	8 *	78	8 *	8 *	6 *	8 *	21	25
Health-care facilities management	–	100	-	-	-	-	100	-	-	-	-	–	–
Hotel/restaurant/resort management	417 *	85	–	–	–	–	73	–	–	–	–	20 *	24 *
Other institutional management	–	79	–	–	-	–	85	–	-	–	-	-	–
Management and administration-business and commerce	1,907	79	8 *	7 *	–	7 *	83	5 **	5 *	6 **	6 *	22	25
Merchandising and sales	1,054	75	10 *	10 *	–	10 *	79	7 **	10 *	5 **	10 *	21	26
Secretarial science	4,675	84	6	6	3 *	6	83	6	4 *	7	4 *	21	24
Business machine operations	452 *	94	-	–	–	–	87	–	–	–	–	23	27
Word processing	303 **	96	-	–	-	–	95	-	-	–	-	23 *	28 *
Other business machine operations	–	88	-	-	–	-	70	–	–	–	–	21 *	23 **
Secretary-accounting, bookkeeping	–	100	-	-	-	-	72 *	–	-	–	-	–	–
Secretary-general	2,770	82	7	7 *	4 *	7 *	81	8 *	5 *	7	5 *	19	22
Secretary-legal	624 *	89	–	–	–	–	84	–	–	–	–	22	26
Court reporting	–	100	-	-	-	-	100	-	-	-	-	–	–
Legal secretary/law clerk	512 *	89	–	–	–	–	84	–	–	–	–	22	27
Secretary-medical	747	83	–	–	–	–	86	–	–	7 **	–	23	25
Health records technology	–	74	–	–	–	–	84	–	-	–	-	24 **	28 *
Medical secretary	296 **	82	–	–	–	–	81	–	–	–	–	22 *	24 *
Service industry technologies	439 *	83	–	9 **	–	9 **	77	9 **	–	–	–	21	23
Food preparation	–	69	–	–	–	–	71	–	–	–	–	14 **	20 **
Cooking	–	77	-	–	–	–	75	–	–	–	–	14 **	23 **

Table B-1F. Characteristics of 1986 female career/technical graduates by field of study, March 1991

Career/technical graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Food serving	–	98	–	-	-	-	76	–	-	–	-	19 **	–
Engineering and applied sciences	2,822	84	3 *	10	3 *	10	84	5 **	6 *	5 *	6 *	26	30
Chemical technologies	313 *	80	–	10 **	–	10 **	79	–	–	11 **	–	23	27
Biochemical technologies	–	69	–	–	–	–	86	–	-	–	-	24 **	27 *
Chemical engineering technologies	–	84	-	–	–	–	80	-	–	–	–	23 *	27 *
Chemistry	–	88	-	-	–	-	88	-	-	–	-	–	–
Electrical/electronic engineering technologies	245 **	90	–	–	-	–	72	–	–	-	–	27 *	29 *
Electrical/electronic engineering technologies	–	89	–	–	-	–	82	–	–	-	–	23 *	29 **
Electronics	–	96	–	-	-	-	74 *	–	–	-	–	–	–
Telecommunications technologies	–	100	-	-	-	-	–	–	-	-	-	–	–
Radio and television	–	100	-	-	-	-	–	–	-	-	-	-	-
Engineering technologies	567 *	77	–	16 *	6 **	17 *	83	–	6 **	8 **	6 **	22	28
Engineering-general	226 **	76	–	17 **	–	18 **	91	–	–	–	–	21	27
Civil technologies	–	79	-	–	–	–	89	–	-	–	-	23 **	28 **
Drafting	–	82	–	–	–	–	94	-	–	-	–	21 *	27 *
Cartography	–	68 *	–	–	-	–	87	-	–	-	–	–	26 **
Engineering design or drafting	–	92	-	-	–	-	100	-	-	-	-	22 **	29 **
Mechanical drafting	–	100	-	-	-	-	100	-	-	-	-	–	–
Surveying	–	–	-	–	–	–	75	-	–	-	–	–	-
Engineering-mechanical	–	63 *	-	–	–	–	70	–	–	–	–	29 **	33 **
Other mechanical engineering technologies	–	83	-	–	-	–	79	-	–	–	–	–	–
Engineering-architectural and construction	193 **	85	–	–	–	–	78	–	–	–	–	21	28
Architectural design/drafting technology	–	81	–	–	–	–	79	–	–	–	–	21 *	29 *
Construction or building technologies	–	100	-	-	-	-	58 **	–	–	–	–	–	–
Other construction or building technologies	–	100	-	-	-	-	–	–	–	–	–	–	-
Engineering-industrial	–	80	–	–	–	–	85	-	-	–	-	–	–
Manufacturing technologies	–	–	-	–	–	-	69 **	-	-	–	-	-	-
Mathematics and computer science	1,617	87	–	8 *	–	8 *	88	4 **	4 **	–	4 **	26	30
Computer science	1,608	87	–	8 *	–	8 *	88	4 **	4 **	–	4 **	26	31
Computer programming	850	86	–	–	–	–	91	–	–	–	–	26	30
Computer sciences-system design and analysis	449 *	84	–	–	–	–	82	–	–	–	–	25	33
Computer technologies	–	98	–	-	-	-	84	–	-	-	-	–	–
Data processing	222 **	90	–	–	-	–	89	–	–	-	–	26 *	30 *
Transportation technologies	–	67	–	–	–	–	59 *	–	–	–	–	23 **	–
Air transportation	–	65 *	–	–	-	–	77 *	–	-	-	-	–	–
Flight attendants	–	60 **	–	–	-	–	100	-	-	-	-	-	-
Motor transportation	–	–	–	-	–	-	75 *	–	-	-	-	-	-
Driver training/education	–	–	–	-	–	-	75 *	–	-	-	-	-	-
Health sciences and related	9,422	77	17	3	2 *	4	70	20	5	5	5	30	33
Diagnostics and treatment medical technologies	2,705	77	16	5 **	–	5 **	71	15	8 *	7 *	8 *	28	32
Combined laboratory and x-ray technologies	–	47 *	40 **	–	–	–	47 *	47 *	-	–	-	–	–
Dental hygiene/assistant technologies	1,029	79	11 **	–	–	–	68	13 **	–	–	–	23	32
Emergency para-medical technologies	–	84 *	-	–	-	–	100	-	-	-	-	–	–
Medical laboratory technologies	664 *	71	25 *	–	–	–	68	15 **	–	–	–	30	32
Pharmacy technologies	–	85	–	-	-	-	93	–	-	-	-	27 **	26 **
Physiotherapy	–	88 *	–	-	–	-	61 *	–	–	–	–	–	–
X-ray/radiology/nuclear medicine technology	434 *	76	–	–	–	–	71	–	–	–	–	29 *	29 *
Other diagnostic and treatment medical technologies	–	83 *	–	-	-	-	66 **	–	–	-	–	–	–
Medical equipment and prosthetics	179 **	82	–	-	-	-	82	-	-	–	-	–	–
Optical prosthetics/lenses	–	86	-	-	-	-	86	-	-	–	-	–	–
Nursing	6,209	79	16	3 *	2 **	3 *	71	22	3 *	4 *	3 *	33	34
Diploma nursing	3,761	80	16	3 **	–	3 **	69	25	3 *	3 **	3 *	31	34
Nursing aide/orderly	534 *	69	17 **	–	–	–	75	–	–	7 **	–	23 *	25 *

Table B-1F. Characteristics of 1986 female career/technical graduates by field of study, March 1991

Career/technical graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Nursing refresher	–	69	–	-	–	-	59 *	–	-	–	-	–	–
Psychiatric or mental health nursing	–	83	13 **	–	-	–	80	9 **	–	–	–	31	32
Other specialized nursing	188 **	42 **	47 **	-	–	-	34 **	58 *	-	–	-	–	–
Other health related technologies	278 **	51 *	32 **	–	–	–	47 *	32 **	–	–	–	22 *	28 *
Biological sciences/technologies	–	63 *	–	–	–	–	45 **	–	–	–	–	23 **	–
Dietetics/dietary technologies	–	41 **	40 **	–	–	–	29 **	50 **	–	–	–	–	24 **
Health education	–	–	-	–	-	–	100	-	-	-	-	-	-
Mental health technologies	–	88	–	-	-	-	46 **	–	–	–	–	–	24
Humanities and related	606 *	83	–	7 **	–	7 **	73	–	–	–	–	21 *	25 **
Journalism	–	79	-	–	–	–	82	–	–	–	–	19 *	–
Languages	–	87	–	–	-	–	–	–	–	–	–	–	-
English as a second language	–	79 *	-	–	-	–	79 *	–	–	-	–	-	-
Library science	343 *	83	–	–	–	–	82	–	–	–	–	22 **	25 **
Library/documentation sciences	272 **	94	-	–	–	–	82	–	–	–	–	22 **	–
Natural sciences and primary industries	990	76	7 *	11	6 *	12	64	8 *	14	14	16	20	24
Environmental and conservation technologies	–	83	–	–	–	–	72	–	–	–	–	21 *	30 *
Environmental control/protection technologie	–	86	-	–	–	–	80	-	–	–	–	–	30 **
Land resources technologies	–	89	–	-	-	-	–	–	–	-	–	–	–
Wildlife and forest conservation technologies	–	79	–	–	-	–	66 *	-	–	–	–	–	–
Natural sciences	679 *	76	7 *	9 *	7 **	10 *	66	11 *	8 *	15	9 *	17	22
Agriculture	–	71	–	–	–	–	70	–	–	–	–	19 **	25 **
Agriculture business	–	89	-	–	-	–	67 *	–	-	-	-	–	–
Agriculture technologies/sciences/engineering	–	52 **	–	–	–	–	55 *	–	–	–	–	–	–
Animal sciences	410 *	80	–	7 **	7 **	8 **	69	9 **	7 **	14 *	8 **	17	22
Equine studies/horse husbandry	–	61	–	–	–	–	52 *	–	–	32 **	–	12 *	–
Veterinary technologies/animal health	–	81	–	–	–	–	75	–	–	17 **	–	17	24 *
Zoology	–	100	-	-	-	-	–	–	–	-	–	–	-
Other animal sciences	–	86	-	-	–	-	71 *	–	–	-	–	–	–
Plant sciences	–	75	–	–	–	–	58	–	–	18 **	–	19 *	25 *
Crops and horticulture	–	87	–	-	-	-	66 *	-	–	–	–	–	–
Landscaping	–	73	–	-	–	-	68 *	–	-	–	-	–	25 **
Primary industries (excluding agriculture)	–	65	–	28 **	-	28 **	40 *	–	42 *	–	50 *	28 *	–
Forestry technologies	–	67 *	–	–	-	–	42 **	-	46 *	–	52 *	26 **	–
Mining technologies	–	59 **	–	–	-	–	–	-	–	–	–	–	-
Petroleum resources technology	–	–	–	-	-	-	–	–	–	–	–	–	-
Resource processing technologies	–	89	-	–	–	–	80	-	–	–	–	–	29 **
Food processing technologies	–	97	-	–	-	–	86	-	–	-	–	23 **	–
Other food processing technologies	–	91	-	–	-	–	91	-	–	-	–	-	-
Social sciences and services	6,019	75	13	7	5 *	7	76	11	7	6	7	21	25
Educational and counselling services	2,404	74	13	6 *	7 *	6 *	72	14	5 **	9 *	6 **	20	24
Counselling services technologies	178 **	47 **	-	–	47 **	–	60 *	–	–	–	–	–	27 **
Counsellor-education/career/vocational	–	–	-	–	73 *	-	–	-	–	–	–	-	–
Educational services	2,226	76	14	6 *	4 **	6 *	73	14	4 *	9 *	4 *	20	24
Education-early childhood	1,194	86	6 **	5 **	–	5 **	76	9 *	–	11 *	–	19	23
Education-handicapped	–	83	–	-	–	-	92	-	-	–	-	22 **	24 **
Teacher training	491 *	69	21 *	–	–	–	64	27 *	7 **	2 **	7 **	19	24
Teachers aide/educational support	–	44 **	–	–	–	–	62 *	–	–	–	–	–	18 **
Personal development	–	71 *	-	–	-	–	70 *	-	–	-	–	–	–
Communications skills development	–	64 **	-	–	-	–	88	-	–	-	–	–	–
Protection and correction services	606 *	76	–	14 **	–	14 **	84	–	10 **	–	10 **	24	32
Correctional technologies	–	84	–	-	-	-	86	-	–	-	–	23 **	–
Para-legal technologies	–	62 *	–	–	-	–	55 **	–	–	–	–	–	–
Police technologies/criminology	211 **	83	–	–	–	–	93	-	–	–	–	27 *	40 *

Table B-1F. Characteristics of 1986 female career/technical graduates by field of study, March 1991

Career/technical graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Protection technologies	220 **	71	–	–	–	–	83	–	–	–	–	23 **	27 *
Security	220 **	71	–	–	–	–	83	–	–	–	–	23 **	27 *
Recreation and sport	962	82	14 *	–	–	–	84	8 **	–	–	–	20	25
Physical education instruction	–	–	–	–	–	–	55 **	–	–	–	–	-	–
Recreation leadership/leisure services	372 *	77	17 **	4 **	–	4 **	75	–	–	–	–	22 *	27 *
Travel and tourism	513 *	91	–	-	–	-	94	–	–	–	–	19	24
Travel counsellor/agent	363 *	88	–	-	–	-	92	–	–	–	–	19 *	23
Social sciences	–	67 *	–	–	-	–	61 **	-	-	–	-	–	–
Other social sciences	–	71 **	–	–	-	–	79 *	-	-	–	-	–	–
Social services	1,902	75	14	6 *	4 **	7 *	74	13 *	8 *	5 *	9 *	23	26
Care of the disabled	–	90	–	-	–	-	85	–	–	-	–	27 *	26 *
Child care services	713	87	–	8 **	–	8 **	82	–	–	5 **	–	21	23
Domestic science and related	–	–	–	-	–	-	–	75 **	-	-	-	-	-
Gerontology	–	57 *	43 **	-	-	-	48 **	–	–	-	–	–	–
Social services/welfare technologies	815	67	19 *	8 **	–	8 **	71	13 **	10 **	6 **	10 **	23	27

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1G. Characteristics of 1986 university graduates by field of study, March 1991

University graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	119,361	75	9	8	7	9	80	9	6	6	6	33	38
Agriculture and biological sciences	6,367	60	9	11	19	14	72	9	9	11	10	28	34
Agriculture	1,124	77	6 *	8 *	9 *	9 *	79	8 *	7 *	6 *	7 *	28	32
Animal science	201 **	57	–	20 **	19 **	25 **	61	–	–	–	–	23 *	32 *
Plant science	206 **	84	–	–	–	–	73	–	–	–	–	29 *	32 *
Soil science	–	75	–	–	–	–	88	–	-	–	-	33 **	40 **
Other agriculture	626	82	7 **	6 **	–	7 **	85	–	–	–	–	26	30
Biochemistry	627	47	–	17 *	28 *	23 *	69	–	–	21 *	–	28 *	32 *
Biology	2,954	50	11	12	26	17	66	9 *	12	12	13	26	34
Genetics	–	55 **	–	–	–	–	63 *	–	–	–	–	–	–
Microbiology	170 **	58	–	–	22 **	–	58	–	–	21 **	–	26 **	35 *
Other biology	1,969	45	14	13	27	19	63	10 **	13	14	15	26	34
Biophysics	–	–	–	–	–	-	–	-	-	–	-	-	–
Botany	–	75	–	–	–	–	63	–	–	–	–	26 **	34 **
Food and household science	738	70	13 *	7 **	–	8 **	80	12 *	5 **	–	6 **	28	35
Food science and nutrition	412 *	63	14 **	–	–	–	78	15 **	–	–	–	29	35
Other household science and related	326 *	78	11 **	–	–	–	82	8 **	–	–	–	28	34
Veterinary medicine and science	291 *	88	–	–	–	–	92	–	–	–	–	37	43
Veterinary medicine	248 *	88	–	–	–	–	95	–	-	-	-	37	43
Veterinary sciences	–	88	–	-	–	-	76	–	–	–	–	48 *	53 *
Zoology	512 *	66	–	–	–	–	71	9 **	8 **	12 **	10 **	26 *	38 *
Commerce, management and administration	19,029	88	3 *	6	3 *	6	86	4 *	6	4	6	31	40
Commerce, management and business administration	17,673	89	3 *	6	2 *	6	86	3 *	6	5	7	31	40
Specialized administration	1,356	85	–	–	–	–	87	–	–	–	–	36	42
Health administration	440 *	86	–	–	–	–	92	–	–	–	–	40 *	42 *
Hotel and food administration	–	–	-	–	–	–	83 *	–	-	-	-	-	–
Public administration	584	89	–	–	–	–	88	–	–	–	–	43	50
Other specialized administration studies	204 **	94	-	–	–	–	76 *	–	-	-	-	27 **	32 **
Education	18,944	79	14	4	3	4	80	12	4	4	4	34	38
Elementary/secondary teacher training	10,989	80	13	4	3 *	4	80	11	4 *	5 *	5 *	34	38
Non-teaching field	1,931	90	7 *	2 *	–	2 *	88	10 *	–	2 *	–	49	50
Curriculum specialization	286 *	96	–	–	–	–	93	–	1 **	–	1 **	55	58
Education administration	546 *	95	–	–	–	–	97	–	–	–	–	53	56
Education foundations	–	79	–	–	-	–	90	–	-	–	-	48 **	53 **
Education psychology	376 *	82	–	–	–	–	82	–	–	–	–	30 **	40 *
Guidance and counselling	288 *	82	–	–	-	–	74	–	-	–	-	34 **	41 **
Measurements and evaluation	–	79	–	-	–	-	77	–	-	-	-	–	–
School librarianship	–	100	-	-	-	-	100	-	-	-	-	–	–
Other non-teaching fields	333 *	92	–	–	-	–	88	–	-	–	-	46 *	50 *
Physical education, kinesiology, recreation, etc.	3,298	70	16	7 *	7 **	7 *	77	14 *	4 **	5 **	5 **	29	35
Kinesiology, human kinetics and kinanthropology	319 *	50 *	38 **	–	–	–	79	–	–	–	–	–	35 **
Physical education	2,148	71	14 *	7 **	8 **	8 **	79	13 *	–	–	–	29	36
Recreation	831	77	–	–	–	–	71	–	–	–	–	30 *	30 *
Other teaching	1,212	71	27 *	–	–	–	75	18 *	–	2 **	–	33	34
Higher education teacher training	323 *	83	–	–	–	–	87	10 **	–	–	–	43 *	44 *
Kindergarten teacher training	888	67	32 *	-	–	-	71	21 **	–	–	–	31 *	33 *
Engineering and applied science	9,438	83	2 *	7	7	8	88	2 *	6	4	6	35	42
Architecture	475 *	90	–	–	–	–	90	–	–	–	–	29 *	36 *
Engineering	8,363	83	2 *	7	7	8	89	2 *	6	3	6	35	43
Chemical engineering	963	83	–	–	11 *	–	92	–	–	–	–	37	43
Civil engineering	1,268	88	–	5 **	6 **	5 **	88	–	–	–	–	35	44

Table B-1G. Characteristics of 1986 university graduates by field of study, March 1991

University graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Electrical engineering	2,239	82	4 **	7 *	7 *	7 *	91	–	5 **	–	5 **	36	43
Mechanical engineering	1,988	85	–	8 *	6 *	8 *	86	–	7 *	–	8 *	35	43
Other engineering	1,904	79	–	10 *	8 *	11 *	88	–	5 **	4 **	5 **	35	40
Aeronautical and aerospace engineering	–	75 *	-	–	–	–	80 *	-	–	-	–	–	–
Design and systems engineering	–	98	-	–	-	–	84 *	–	-	-	-	–	–
Engineering general	257 *	54 *	–	–	–	22 **	84	–	–	–	–	28 *	35 *
Engineering science	186 **	65	–	–	–	–	67	–	-	–	-	36 **	43 **
Industrial engineering	301 *	91	-	–	–	–	89	–	–	-	–	37 *	42 *
Metallurgical engineering	149 **	76	–	–	–	–	96	-	–	–	–	40 **	42 *
Mining engineering	152 **	95	–	-	–	-	91	–	–	–	–	41 *	45 *
Other engineering	737	82	–	10 **	4 **	11 **	92	–	–	–	–	35	40
Forestry	463 *	77	–	–	–	–	82	–	–	–	–	31	38
Landscape architecture	–	100	-	-	-	-	87	-	-	–	-	–	–
Fine and applied arts	4,504	60	21	12 *	7 *	13 *	65	16	10 *	8 *	11 *	29	32
Applied arts	584	68	–	–	–	–	69	–	–	–	–	30 *	32 *
Industrial design	–	92	-	-	-	-	82 *	–	-	-	-	–	–
Other applied arts	523 *	65	–	–	–	–	68	–	–	–	–	29 *	30 *
Fine art	2,082	62	20 *	12 *	–	12 *	68	14 *	12 **	–	13 **	28	33
Music	1,269	49	29 *	12 **	–	13 **	65	19 *	–	–	–	29 *	32
Other performing arts	568	70	–	–	–	–	54	–	–	–	–	26 *	30 *
General arts and science	3,716	69	6 *	13	12	15	78	9 *	5 **	8 *	5 **	30	36
General arts and science	453 *	72	–	–	–	–	86	–	–	–	–	–	40 **
General arts	1,605	69	8 **	15 *	8 **	16 *	74	13 *	–	8 **	–	29	35
General science	1,657	69	4 *	11	15 *	14	79	7 **	4 *	10 **	4 *	30	36
Health professions	9,945	78	12	4	6	4	80	13	2 *	4	3 *	36	40
Dental studies and research	607	84	10 **	–	–	–	90	–	-	-	-	81 *	90 *
Dentistry	377 *	86	–	–	–	–	96	–	-	-	-	93 *	80 *
Dental specialties	230 **	79	–	–	-	–	80	–	-	–	-	–	90 **
Medical studies and research	2,792	74	8 **	7 *	11 *	8 *	87	6 *	2 **	5 *	2 **	35	45
Medicine	1,693	88	–	4 **	4 **	4 **	95	–	–	-	–	36	65
Basic medical sciences	700	50	–	–	28 *	–	65	–	–	18 *	–	30 *	34
Anatomy	–	–	–	–	–	–	83 *	-	-	–	-	-	–
Biochemistry	–	60 *	–	–	–	–	74	–	–	–	–	–	29 **
Biophysics	–	87	-	-	–	-	51 *	–	–	–	–	35 *	–
Pharmacology	–	37 **	–	–	–	–	53 *	–	–	–	–	46	48 **
Physiology	180 **	–	–	–	73	–	66	–	–	–	–	–	–
Other basic sciences	227 **	65 *	–	–	–	–	60 *	–	–	–	–	–	–
Medical specialties	393 *	52	–	15 *	–	17 *	91	–	–	-	–	–	36 *
Surgical specialties	–	54 **	–	-	–	-	54 **	-	–	–	-	-	-
Nursing	3,301	79	16	–	–	–	73	18	–	5 *	–	35	39
Pharmacy	617	91	–	–	–	–	92	–	–	–	–	43	47
Rehabilitation medicine	749	90	–	–	–	–	81	12 **	–	–	–	36	40
Aural and oral rehabilitation	–	73	–	–	–	–	76	–	–	-	–	37	42 *
Occupational therapy	199 **	93	–	-	-	-	77	–	–	–	–	35 *	39 *
Physical therapy	351 *	95	–	-	-	-	83	–	–	-	–	36 *	40 *
Other rehabilitation	–	80 *	–	–	-	–	80	–	–	-	–	–	–
Other health professions	1,833	71	20	–	7 **	–	73	19	–	4 **	–	37	42
Epidemiology and public health	1,187	66	25	–	–	–	71	22 *	–	–	–	38	42
Medical technology	156 **	82	–	-	–	-	84	–	–	-	–	31 *	35 **
Optometry	–	99	–	-	-	-	96	4 **	-	-	-	70 *	60 *
Paraclinical sciences	–	59	-	–	36 **	–	61	–	-	26 **	-	35	45

Table B-1G. Characteristics of 1986 university graduates by field of study, March 1991

University graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Immunology	–	77	-	-	–	-	–	-	-	–	-	-	–
Microbiology	–	50 *	-	–	45 **	–	56 *	–	-	–	-	35	45 *
Pathology	–	86	-	–	-	–	100	-	-	-	-	37 **	40 **
Other health professions	276 *	81	–	–	–	–	71	23 **	–	–	–	34 *	36 *
Humanities	13,325	66	13	12	9	13	73	11	8	8	8	29	33
Classics, classical and dead languages	–	66 *	–	–	–	–	79	–	–	–	–	–	–
English language and/or literature	3,002	66	11 *	10 *	12 *	11 *	68	15	9 *	7 *	10 *	29	33
French language and/or literature	1,789	64	14 *	14 **	8 **	15 **	81	10 **	–	–	–	29	34
Other languages and/or literatures	644	65	25 **	–	–	–	64	–	–	–	–	27 *	34 *
Asian languages and literatures	–	78 *	–	-	-	-	68 **	-	–	–	–	–	–
Comparative literature	–	60 *	–	-	–	-	52 **	–	–	–	–	–	–
Other languages and literatures	515 *	69	–	–	–	–	70	–	–	–	–	26 **	34 **
History	2,236	53	17 *	15 *	15 *	17 *	72	11 *	7 **	10 **	7 **	28	33
Library and records science	626	71	–	–	–	–	84	–	–	–	–	30	35
Library science	522 *	73	–	–	–	–	85	–	–	–	–	32	35
Other records science	–	–	-	–	–	–	76 *	–	-	-	-	–	–
Linguistics, translation, and interpretation	923	58	15 **	18 **	–	20 **	71	–	–	–	–	28 *	33 *
Linguistics	388 *	36 **	–	37 **	–	38 **	59	–	–	–	–	28 **	30 **
Translation and interpretation	536 *	75	–	–	–	–	80	–	–	–	–	29 **	33 **
Mass media studies	1,825	74	–	18 *	–	19 *	76	–	14 **	–	14 **	29	32
Journalism	284 *	94	-	–	-	–	76	–	–	-	–	29 **	48 **
Other mass communication	1,541	71	–	20 *	–	21 *	76	–	14 **	–	15 **	29	30
Philosophy	419 *	59	–	21 **	–	23 **	67	19 **	–	–	–	30 **	35 *
Religious and theological studies	1,723	77	16 *	–	–	–	73	8 **	–	14 *	–	29	32
Religious studies	582	79	–	–	–	–	78	–	–	–	–	35 *	40 *
Theological studies	1,140	76	16 **	–	–	–	71	–	–	13 **	–	26	29
Mathematics and physical sciences	8,289	79	4	8	8	9	82	5	6	6	7	35	40
Chemistry	917	64	–	11 **	20 *	13 **	75	–	–	11 **	–	30	36
Computer science	3,554	89	–	6 *	2 **	6 *	90	–	4 **	3 **	4 **	35	41
Geology and related	745	68	–	18 *	8 **	20 *	70	–	15 **	9 **	16 **	35	40
Mathematics	2,079	83	4 **	5 **	7 *	5 **	82	7 *	6 **	5 **	6 **	33	40
Physics	867	54	14 *	11 **	20 *	14 **	65	7 **	12 **	16 **	14 **	29 *	42
Astronomy	–	–	–	-	–	-	–	–	-	–	-	-	–
Other physics	835	54	14 **	12 **	21 *	15 **	65	8 **	12 **	15 **	14 **	29 *	42
Other physical sciences	–	90	-	-	–	-	97	-	-	–	-	–	–
Meteorology	–	95	-	-	–	-	100	-	-	-	-	–	–
Other meteorology	–	100	-	-	-	-	100	-	-	-	-	–	–
Oceanography and water studies	–	68	-	-	32 **	-	89	-	-	–	-	37 *	45 *
Social sciences (excluding business and commerce)	25,739	71	9	12	9	13	78	9	6	6	7	30	36
Anthropology	482 *	56	–	–	–	–	57	–	–	28 **	–	27 **	27 *
Archaeology	–	–	-	–	–	–	69 **	–	-	–	-	23 **	–
Canadian and area studies	193 **	62 *	–	–	–	–	78	–	–	–	–	–	–
Area studies	–	55 **	–	–	–	–	77 *	–	-	–	-	–	–
Other area studies	–	–	–	-	–	-	86	-	-	–	-	–	–
Canadian studies	–	66 *	–	–	–	–	79	–	–	–	–	–	–
Demography	–	100	-	-	-	-	92	-	–	-	–	–	–
Economics	3,667	76	–	12 *	9 **	13 *	83	–	7 **	7 **	7 **	29	37
Geography	2,041	72	7 **	10 *	11 **	11 *	79	–	9 **	–	9 **	29	35
Law and jurisprudence	3,215	86	–	8 **	–	8 **	93	–	–	–	–	35	50
Man/environment studies	975	67	–	14 **	–	15 **	75	–	–	–	–	35	38
Regional, rural, urban, city planning and community development	610	70	–	–	–	–	76	–	–	–	–	35 *	42 *

Table B-1G. Characteristics of 1986 university graduates by field of study, March 1991

University graduates - Both sexes	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Resource management, environmental studies	317 *	69	--	--	--	--	78	--	--	--	--	29 *	35 *
Political science	2,855	58	9 *	21	12 *	24	75	8 *	9 *	7 **	10 *	28	34
Psychology	6,602	62	14	12	12	13	74	15	5 *	5 *	5 *	28	35
Secretarial studies	208 **	100	-	-	-	-	79	-	--	--	--	23 **	29 **
Social work and social welfare	1,781	86	8 **	5 **	--	5 **	81	11 *	--	--	--	33	36
Sociology and criminology	3,554	71	10 *	11 *	8 *	12 *	72	13 *	7 *	8 *	8 *	28	33
Criminology	471 *	71	--	--	--	--	90	--	--	--	--	34 *	34 *
Sociology	3,083	71	10 *	10 *	9 *	11 *	69	14 *	8 **	9 *	8 **	27	32
Other social services	--	100	-	-	-	-	89	-	-	--	-	46 **	--

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1H. Characteristics of 1986 male university graduates by field of study, March 1991

University graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	55,009	79	5	9	7	10	85	4	6	4	7	35	40
Agriculture and biological sciences	3,195	62	7	11	20	14	72	7 *	10	11	11	28	36
Agriculture	713	85	–	–	5 **	–	86	–	6 **	–	7 **	29	35
Animal science	–	69	–	–	–	–	76	–	–	–	–	28 **	40 **
Plant science	–	90	–	–	–	–	79	–	–	–	–	30 *	38 *
Soil science	–	84	–	–	–	–	100	–	–	–	–	–	45 **
Other agriculture	447 *	87	–	–	–	–	89	–	–	–	–	28	30
Biochemistry	303 *	45	–	–	33 **	18 **	56	–	–	31 **	–	23 *	32 *
Biology	1,570	53	9 *	13	26	17	66	10 **	13 *	11	15 *	27	36
Genetics	–	–	–	–	–	–	80 *	–	–	–	–	–	–
Microbiology	–	56 *	–	–	–	–	47 **	–	–	–	–	–	–
Other biology	1,005	44	9 *	15 *	31	21 *	64	–	15 *	12 *	17 *	28	35
Biophysics	–	–	–	–	–	–	–	–	–	–	–	–	–
Botany	–	80	–	–	–	–	90	–	–	–	–	28 **	36 *
Food and household science	–	66	–	–	–	–	81	–	–	–	–	–	–
Food science and nutrition	–	61 *	–	–	–	–	78	–	–	–	–	–	–
Veterinary medicine and science	144 **	92	–	–	–	–	99	–	–	–	–	37 *	45 *
Veterinary medicine	–	90	–	–	–	–	100	–	–	–	–	37 *	45 *
Veterinary sciences	–	100	–	–	–	–	92	–	–	–	–	52 **	60 **
Zoology	342 *	65	–	–	–	–	70	–	–	–	–	26 **	38 *
Commerce, management and administration	10,501	90	2 **	6 *	1 **	6 *	90	–	7	–	7	35	42
Commerce, management and business administration	9,999	90	2 **	6 *	–	6 *	90	–	8	–	8	35	42
Specialized administration	502 *	92	–	–	–	–	91	–	–	–	–	44	50
Health administration	–	100	–	–	–	–	94	–	–	–	–	–	–
Public administration	297 *	96	–	–	–	–	94	–	–	–	–	46 *	50 *
Other specialized administration studies	–	92	–	–	–	–	100	–	–	–	–	–	–
Education	6,023	88	7 *	4 *	–	4 *	88	6 *	4 **	–	4 **	35	40
Elementary/secondary teacher training	3,145	91	5 *	–	–	–	90	6 **	–	–	–	36	40
Non-teaching field	763	97	–	1 *	–	1 *	97	–	–	–	–	52	52
Curriculum specialization	–	96	–	–	–	–	96	–	–	–	–	58 *	60
Education administration	353 *	98	–	–	–	–	98	–	–	–	–	57	59
Education foundations	–	95	–	–	–	–	95	–	–	–	–	–	–
Education psychology	–	98	–	–	–	–	100	–	–	–	–	–	–
Guidance and counselling	–	97	–	–	–	–	100	–	–	–	–	–	–
Measurements and evaluation	–	100	–	–	–	–	75 *	–	–	–	–	–	–
Other non-teaching fields	–	95	–	–	–	–	96	–	–	–	–	–	–
Physical education, kinesiology, recreation, etc.	1,462	76	10 **	11 **	–	11 **	80	–	–	–	–	29	35
Kinesiology, human kinetics and kinanthropology	151 **	74 *	–	–	–	–	78 *	–	–	–	–	–	–
Physical education	1,071	77	–	–	–	–	82	–	–	–	–	28	35
Recreation	240 **	71 *	–	–	–	–	71 *	–	–	–	–	–	–
Other teaching	190 **	83	–	–	–	–	95	–	–	–	–	–	–
Higher education teacher training	–	93	–	–	–	–	92	–	–	–	–	–	–
Kindergarten teacher training	–	–	–	–	–	–	100	–	–	–	–	–	–
Engineering and applied science	8,281	83	2 *	8	7	8	90	2 *	5	3	5	35	42
Architecture	351 *	92	–	–	–	–	95	–	–	–	–	29 **	36 *
Engineering	7,474	83	2 *	7	7	8	90	2 *	5	3 *	6	35	43
Chemical engineering	664	83	–	–	14 **	–	93	–	–	–	–	37	44
Civil engineering	1,125	89	–	5 **	5 **	6 **	89	–	–	–	–	35	45
Electrical engineering	2,094	81	4 **	7 *	6 *	7 *	92	–	4 **	–	5 **	36	43
Mechanical engineering	1,872	86	–	8 *	5 **	8 *	87	–	7 *	–	8 *	35	43
Other engineering	1,719	78	–	11 *	8 **	12 *	89	–	5 **	5 **	5 **	35	40
Aeronautical and aerospace engineering	–	75 *	–	–	–	–	80 *	–	–	–	–	–	–
Design and systems engineering	–	97	–	–	–	–	100	–	–	–	–	–	–

Table B-1H. Characteristics of 1986 male university graduates by field of study, March 1991

University graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Engineering general	232 **	55 *	–	–	–	24 **	91	-	–	–	–	26 *	35 *
Engineering science	164 **	60 *	–	–	–	–	63 *	–	-	–	-	–	43 **
Industrial engineering	262 *	92	-	–	–	–	90	-	–	-	–	37 *	42 *
Metallurgical engineering	–	72	–	–	–	–	96	-	–	–	–	–	44 *
Mining engineering	–	96	-	-	–	-	95	-	–	-	–	43 *	45 *
Other engineering	699	81	–	11 **	4 **	11 **	93	–	–	–	–	35	40
Forestry	370 *	76	–	–	–	–	87	–	–	–	–	31	39
Landscape architecture	–	100	-	-	-	-	100	-	-	-	-	–	–
Fine and applied arts	1,483	65	16 *	12 **	–	13 **	76	10 **	–	–	–	29	30
Applied arts	202 **	82	–	–	-	–	88	–	–	-	–	31 **	36 **
Industrial design	–	90	-	-	-	-	100	-	-	-	-	–	–
Other applied arts	151 **	80 *	–	–	-	–	83	–	–	-	–	–	–
Fine art	596	58	26 **	10 **	–	11 **	76	–	–	-	–	28 **	28 *
Music	524 *	63	–	–	–	–	70	–	–	–	–	24 **	31 *
Other performing arts	160 **	71 *	–	–	-	–	82	–	–	–	–	–	–
General arts and science	1,796	74	–	12 *	8 *	14 *	81	5 *	4 *	10 **	5 *	30	36
General arts and science	231 **	77 *	-	–	-	–	99	-	–	-	–	–	–
General arts	580	73	–	12 *	–	12 *	74	10 **	–	–	–	29	35
General science	985	75	–	10 *	12 **	12 *	81	3 **	5 **	–	5 **	30	37
Health professions	2,779	79	6 **	5 *	10 *	6 *	91	4 **	–	3 **	–	44	52
Dental studies and research	427 *	91	–	–	–	–	100	-	-	-	-	93 *	90 **
Dentistry	305 *	90	–	–	–	–	100	-	-	-	-	93 **	90 **
Dental specialties	–	95	–	-	-	-	100	-	-	-	-	–	–
Medical studies and research	1,505	73	–	9 *	13 *	10 *	92	–	–	–	–	38	50
Medicine	1,035	85	–	5 **	–	5 **	98	–	–	-	–	38	80
Basic medical sciences	308 *	41 *	–	–	37 *	–	67	–	–	–	–	41 *	33 **
Anatomy	–	–	–	–	–	–	100	-	-	-	-	-	–
Biochemistry	–	68 **	-	–	-	–	91	-	–	-	–	–	–
Biophysics	–	71 *	-	-	–	-	–	-	–	–	-	-	-
Pharmacology	–	77	-	–	–	–	84	–	-	–	-	–	–
Physiology	–	–	-	–	86	–	69 *	–	–	–	–	–	–
Other basic sciences	–	51 **	–	–	–	–	–	–	-	–	-	–	–
Medical specialties	155 **	52 **	–	–	–	31 **	97	–	-	-	-	–	–
Surgical specialties	–	54 **	–	-	–	-	54 **	-	–	–	-	-	-
Nursing	–	89	–	-	–	-	82	–	-	–	-	40 **	40 **
Pharmacy	241 **	87	–	-	–	-	92	–	–	-	–	45 *	52 *
Rehabilitation medicine	–	100	-	-	-	-	100	-	-	-	-	37 **	51 **
Aural and oral rehabilitation	–	100	-	-	-	-	100	-	-	-	-	50 **	–
Physical therapy	–	100	-	-	-	-	100	-	-	-	-	–	–
Other health professions	392 *	76	–	–	–	–	81	–	-	–	-	41 *	46 **
Epidemiology and public health	207 **	83	–	–	–	–	86	–	-	–	-	–	–
Medical technology	–	68 **	–	-	–	-	100	-	-	-	-	–	–
Optometry	–	100	-	-	-	-	100	-	-	-	-	–	–
Paraclinical sciences	–	53 *	-	-	47 **	-	58 *	–	-	-	-	35 *	45 *
Immunology	–	72 *	-	-	–	-	–	-	-	62 **	-	-	-
Microbiology	–	43 **	-	-	57 *	-	59 **	–	-	–	-	41 *	45 **
Other health professions	–	–	–	-	-	-	–	–	-	-	-	-	-
Humanities	4,804	65	11	15	8 *	17	78	10	7 *	5 *	7 *	30	33
Classics, classical and dead languages	–	–	–	–	–	–	82	-	–	–	–	-	–
English language and/or literature	792	66	8 **	14 **	12 **	16 **	68	18 *	–	–	–	33 *	36 *
French language and/or literature	378 *	48 *	–	–	–	–	82	–	–	–	–	31 **	31 **
Other languages and/or literatures	–	74	–	-	–	-	88	–	–	–	–	–	–
Comparative literature	–	82	–	-	-	-	67 *	–	–	-	–	–	–

Table B-1H. Characteristics of 1986 male university graduates by field of study, March 1991

University graduates - Men	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Other languages and literatures	–	81 *	–	–	-	-	90	–	-	–	-	–	–
History	1,226	52	18 *	18 *	–	20 *	77	6 **	10 **	–	10 **	29	33
Library and records science	154 **	65 *	–	–	–	–	84	–	-	-	-	33	37 *
Library science	–	89	–	–	-	–	96	–	-	-	-	33 *	39
Other records science	–	–	-	–	–	-	–	–	-	-	-	-	-
Linguistics, translation, and interpretation	189 **	62 **	–	–	–	–	86	–	-	–	-	–	–
Linguistics	–	–	-	–	–	–	–	–	-	–	-	-	–
Translation and interpretation	143 **	63 **	–	-	–	-	100	-	-	-	-	–	–
Mass media studies	830	72	–	23 **	–	23 **	79	–	–	-	–	31 *	28 *
Journalism	–	91	-	–	-	–	86	–	–	-	–	–	–
Other mass communication	751	70	–	24 **	–	25 **	78	–	–	-	–	29 *	28 *
Philosophy	257 *	54 *	–	20 **	–	23 **	71	–	–	–	–	–	35 **
Religious and theological studies	819	87	–	–	–	–	83	–	–	11 **	–	23	31
Religious studies	206 **	73	–	–	–	–	89	–	–	–	–	24 **	32 **
Theological studies	613	91	–	–	-	–	81	–	–	–	–	23	31 *
Mathematics and physical sciences	5,764	79	4	7	9	8	82	4 *	8	6	8	35	40
Chemistry	603	67	–	–	22 *	–	73	–	–	11 **	–	35 *	40 *
Computer science	2,365	91	–	5 *	–	5 *	92	–	4 **	–	4 **	35	41
Geology and related	603	71	–	15 **	–	16 **	75	–	17 **	–	18 **	35	40
Mathematics	1,308	81	3 **	5 **	11 *	6 **	79	5 **	8 **	–	9 **	34	40
Physics	802	54	14 *	12 **	19 *	15 **	67	–	11 **	15 **	13 **	29 *	40
Astronomy	–	–	–	-	–	-	–	–	-	–	-	-	–
Other physics	769	54	14 **	13 **	20 *	16 **	68	–	11 **	14 **	13 **	29 *	41
Other physical sciences	–	91	-	-	–	-	97	-	-	–	-	–	42 *
Meteorology	–	93	-	-	–	-	100	-	-	-	-	–	–
Other meteorology	–	100	-	-	-	-	100	-	-	-	-	–	–
Oceanography and water studies	–	73	-	-	–	-	86	-	-	–	-	37 **	44 *
Social sciences (excluding business and commerce)	10,325	73	5	14	8	15	84	4	7	4 *	7	31	38
Anthropology	–	75 *	–	–	-	–	72 *	–	-	–	-	–	–
Archaeology	–	–	-	–	-	–	100	-	-	-	-	–	–
Canadian and area studies	–	–	–	–	–	–	68 *	–	–	–	–	–	–
Area studies	–	–	–	–	–	–	63 **	–	-	–	-	–	–
Other area studies	–	–	–	-	–	-	86	-	-	–	-	–	–
Economics	2,459	74	–	15 *	10 **	16 *	83	–	–	–	–	29	39
Geography	1,159	76	–	14 **	–	15 **	82	–	9 **	–	10 **	29	34
Law and jurisprudence	1,658	92	–	–	0 **	–	98	–	-	–	-	41	52
Man/environment studies	690	71	–	–	–	–	73	–	–	–	–	35	38
Regional, rural, urban, city planning and community development	471 *	72	–	–	–	–	74	–	–	–	–	35 *	42 *
Resource management, environmental studies	192 **	75	–	–	–	–	79	–	–	–	–	34 **	35 *
Political science	1,536	57	9 **	22 *	12 **	25 *	79	4 **	10 **	–	11 **	28	35
Psychology	1,264	65	8 *	12 **	13 **	14 **	81	10 *	–	–	–	30	35
Social work and social welfare	447 *	84	–	–	–	–	92	–	–	-	–	37	38
Sociology and criminology	843	73	–	20 **	–	20 **	83	–	–	–	–	33	35
Criminology	177 **	73 *	–	–	–	–	93	–	–	-	–	35 **	–
Sociology	666	73	–	19 **	–	20 **	80	–	–	–	–	30 *	35
Other social services	–	100	-	-	-	-	100	-	-	-	-	–	-

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-1I. Characteristics of 1986 female university graduates by field of study, March 1991

University graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Total (all fields of study)	64,321	72	12	8	7	8	75	12	6	7	6	30	36
Agriculture and biological sciences	3,166	58	12	11	19	14	72	10	8	10	9	28	32
Agriculture	408 *	64	6 **	15 *	15 *	18 *	66	18 *	–	9 **	–	25	30
Animal science	–	46 *	–	33 **	–	41 **	47 *	–	–	–	–	–	–
Plant science	–	77	–	–	–	–	65	–	–	–	–	23 **	–
Soil science	–	59 *	–	–	–	–	68 *	–	-	–	-	–	–
Other agriculture	179 **	69	–	–	–	–	77	–	–	–	–	26 *	30 *
Biochemistry	324 *	49 *	–	21 **	–	27 **	81	–	–	–	–	–	31 *
Biology	1,382	48	14 *	12 *	26	16 *	66	–	10 *	14	12 *	24	32
Genetics	–	55 **	-	-	–	-	–	-	–	–	–	–	-
Microbiology	–	59 *	–	-	–	-	67	–	–	–	–	–	34 **
Other biology	964	45	19 *	12 *	23	16 *	61	–	11 *	16	14 *	24	32
Botany	–	69	-	–	–	–	–	–	–	–	53 **	–	-
Food and household science	692	70	13 *	7 **	–	7 **	80	12 *	–	–	–	28	34
Food science and nutrition	372 *	64	15 **	–	–	–	79	15 **	–	–	–	28	35
Other household science and related	320 *	78	11 **	–	–	–	82	9 **	–	–	–	28	34
Veterinary medicine and science	147 **	84	–	-	–	-	86	–	-	–	-	35 *	42 *
Veterinary medicine	–	86	–	-	-	-	91	–	-	-	-	35 *	42 *
Veterinary sciences	–	73	–	-	–	-	57 *	–	-	27 **	-	41 *	42 **
Zoology	170 **	66	–	–	–	–	71	–	–	–	–	28 **	–
Commerce, management and administration	8,528	86	4 *	5 *	4 *	5 *	81	6 *	5 *	8 *	5 *	29	38
Commerce, management and business administration	7,673	87	4 **	5 *	4 **	5 *	81	6 *	5 *	9 *	5 *	29	37
Specialized administration	854	81	–	–	–	–	85	–	–	–	–	35	42
Health administration	358 *	83	–	–	–	–	91	–	–	–	–	35 *	42 *
Hotel and food administration	–	–	-	–	–	-	100	-	-	-	-	-	-
Public administration	287 *	81	–	–	–	–	82	–	–	–	–	31 *	42 *
Other specialized administration studies	–	95	-	–	-	–	60 **	–	-	-	-	–	–
Education	12,921	75	17	4	4 *	5	76	14	4 *	5	4 *	33	37
Elementary/secondary teacher training	7,844	75	16	5	4 *	5	76	13	5 *	6 *	5 *	33	37
Non-teaching field	1,167	84	11 **	3 **	–	3 **	82	15 *	1 **	2 **	1 **	45	45
Curriculum specialization	185 **	96	–	-	–	-	92	–	1 **	-	1 **	52	56
Education administration	193 **	88	–	–	–	–	95	–	–	–	–	51 *	52 *
Education foundations	–	65 **	–	-	-	-	84	–	-	-	-	–	–
Education psychology	310 *	79	–	–	–	–	78	–	–	–	–	30 **	38 *
Guidance and counselling	231 **	79	–	–	-	–	68	–	-	–	-	31 **	–
Measurements and evaluation	–	–	–	-	–	-	78 *	–	-	-	-	-	–
Other non-teaching fields	194 **	91	–	-	-	-	82	–	-	-	-	46 *	48 *
Physical education, kinesiology, recreation, etc.	1,835	66	21 *	4 *	9 **	4 *	74	19 *	–	–	–	29	35
Kinesiology, human kinetics and kinanthropology	168 **	–	53 **	–	–	–	80	–	–	-	–	–	–
Physical education	1,077	64	20 *	4 **	–	5 **	75	18 **	–	–	–	29	36
Recreation	591	79	–	–	–	–	72	–	–	–	–	29 *	30 **
Other teaching	1,022	69	29 *	–	–	–	72	21 **	–	2 **	–	31	34
Higher education teacher training	209 **	77	–	–	–	–	84	–	–	–	–	49 **	–
Kindergarten teacher training	813	67	32 *	-	–	-	68	23 **	–	–	–	31 *	33 *
Engineering and applied science	1,150	82	–	–	10 **	–	79	6 **	9 **	5 **	10 **	35	40
Architecture	–	82	–	-	–	-	80	–	–	–	–	–	–
Engineering	882	82	–	–	12 **	–	81	–	9 **	–	10 **	35	42
Chemical engineering	300 *	83	–	–	–	–	88	–	–	–	–	36 *	42 *
Civil engineering	143 **	79	–	–	–	–	75	-	–	–	–	34 **	40 **
Electrical engineering	145 **	86	-	-	–	-	87	-	–	–	–	–	45 **
Mechanical engineering	–	70 *	–	–	–	–	76	–	–	–	–	35 **	–
Other engineering	177 **	87	–	-	–	-	75	–	–	–	–	35 *	40 *
Engineering general	–	–	-	-	78 *	-	–	–	–	-	–	-	-

Table B-1I. Characteristics of 1986 female university graduates by field of study, March 1991

University graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Industrial engineering	--	88	-	-	--	-	81 *	--	-	-	-	--	--
Metallurgical engineering	--	100	-	-	-	-	100	-	-	-	-	--	--
Mining engineering	--	83	--	-	-	-	--	--	-	--	-	-	-
Other engineering	--	97	--	-	-	-	86	--	-	--	-	36 **	35 **
Forestry	--	80	--	--	-	--	63 *	--	--	-	--	--	--
Fine and applied arts	3,021	58	23	11 *	8 **	12 *	60	19	12 *	9 *	13 *	29	32
Applied arts	382 *	60 *	--	--	--	--	59 *	--	-	--	-	--	30 **
Other applied arts	371 *	59 *	--	--	--	--	61 *	--	-	--	-	--	30 **
Fine art	1,486	64	18 *	12 **	--	13 **	64	15 *	--	--	--	29	35
Music	745	40 *	40 *	--	--	--	62	21 **	--	--	--	30 *	32 *
Other performing arts	408 *	69	--	--	--	--	43 *	--	--	--	--	24 **	--
General arts and science	1,920	64	7 *	14 *	15 *	16 *	75	14 *	--	7 **	--	30	35
General arts and science	223 **	66 *	--	--	--	--	70 *	--	--	--	--	--	--
General arts	1,025	66	6 **	17 **	--	19 **	74	15 **	--	--	--	28 *	33
General science	672	60	7 **	13 *	20 **	16 *	77	--	--	9 **	--	30 *	36
Health professions	7,166	77	15	4 *	4 *	4 *	76	17	3 *	4	3 *	35	40
Dental studies and research	180 **	65	--	--	--	--	66	31 **	-	--	-	52 **	55 **
Dentistry	--	69 *	--	-	--	-	77 *	--	-	-	-	--	--
Dental specialties	--	62 *	--	--	-	--	58 *	36 **	-	--	-	41 **	--
Medical studies and research	1,287	75	11 **	5 **	9 *	5 **	82	9 **	--	6 **	--	34	41
Medicine	658	93	--	--	--	--	91	--	--	-	--	35	58
Basic medical sciences	391 *	57	--	--	21 **	--	64	--	--	20 **	--	29 **	35 *
Anatomy	--	--	--	-	--	-	76 **	-	-	--	-	-	-
Biochemistry	--	56 **	--	--	--	--	66 *	--	-	--	-	--	--
Biophysics	--	100	-	-	-	-	59 **	--	-	-	-	--	-
Pharmacology	--	--	--	--	--	--	--	--	--	--	--	--	--
Physiology	--	--	--	--	54 **	--	63 *	--	--	--	--	--	--
Other basic sciences	--	78 *	--	-	-	-	71 *	--	--	-	--	--	--
Medical specialties	238 **	53 *	32 **	--	--	--	87	--	--	-	--	43 **	38 **
Nursing	3,166	78	16	--	--	--	73	19	--	5 **	--	35	38
Pharmacy	376 *	94	--	--	--	--	91	--	--	--	--	41	45
Rehabilitation medicine	694	89	--	--	--	--	79	13 **	--	--	--	35	40
Aural and oral rehabilitation	--	70	--	--	--	--	74	--	--	-	--	36 *	42 *
Occupational therapy	196 **	93	--	-	-	-	77	--	--	--	--	35 *	39 *
Physical therapy	321 *	94	--	-	-	-	82	--	--	-	--	36 *	40 *
Other rehabilitation	--	77 *	--	--	-	--	77 *	--	--	-	--	--	--
Other health professions	1,441	69	22	--	--	--	71	22	--	--	--	36	40
Epidemiology and public health	980	62	28	--	--	--	68	24 *	--	--	--	38	40
Medical technology	--	87	--	-	-	-	79	--	--	-	--	--	33 **
Optometry	--	98	--	-	-	-	93	7 **	-	-	-	55 **	58 **
Paraclinical sciences	--	72	-	--	--	--	66	--	-	23 **	-	33 *	46 *
Microbiology	--	67	-	--	--	--	50 *	--	-	33 **	-	33 *	50 **
Pathology	--	76 *	-	--	-	--	100	-	-	-	-	--	--
Other health professions	247 **	83	--	--	--	--	72	21 **	--	--	--	34 *	36 *
Humanities	8,506	66	14	10	9	11	71	12	8	9	9	28	33
Classics, classical and dead languages	--	77 *	--	--	--	--	77 *	--	-	--	-	--	--
English language and/or literature	2,203	66	12 *	8 *	12 *	10 *	68	14 *	8 **	9 *	9 **	27	33
French language and/or literature	1,410	68	14 **	10 **	--	11 **	81	9 **	--	--	--	29	35
Other languages and/or literatures	518 *	63	--	--	--	--	58	--	--	--	--	24 **	30 **
Comparative literature	--	--	--	-	--	-	--	--	-	--	-	-	-
Other languages and literatures	447 *	67	--	--	--	--	66	--	--	--	--	--	30 **
History	1,002	56	16 **	10 **	19 **	12 **	65	17 **	--	14 **	--	28 *	32
Library and records science	472 *	73	--	--	--	--	84	--	--	--	--	30	35 *

Table B-1I. Characteristics of 1986 female university graduates by field of study, March 1991

University graduates - Women	Number of graduates	Labour force status May 1988					Labour force status March 1991					Median annual earnings of full-time workers (1991 $'000)	
		% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	% working full-time	% working part-time	% unemployed	% not in the labour force	unemployment rate	May 1988	March 1991
Library science	417 *	69	–	–	–	–	83	–	–	–	–	31	35
Other records science	–	100	-	-	-	-	94	-	-	-	-	–	–
Linguistics, translation, and interpretation	734	57	–	21 **	–	23 **	67	–	–	–	–	24 **	32 *
Linguistics	341 *	32 **	–	38 **	–	38 **	61 *	–	–	–	–	–	30 **
Translation and interpretation	393 *	79	–	–	–	–	73	–	–	–	–	24 **	33 **
Mass media studies	995	76	–	–	–	–	74	–	–	–	–	29 *	38 *
Journalism	205 **	95	-	–	-	–	72 *	–	–	-	–	–	–
Other mass communication	790	71	–	–	–	–	75	–	–	–	–	29 *	32 *
Philosophy	162 **	68 *	–	–	–	–	59 **	–	–	–	–	–	–
Religious and theological studies	904	69	20 **	–	–	–	64	–	–	17 **	–	33 *	35 *
Religious studies	376 *	82	–	-	–	-	73	–	–	–	–	41 *	45 **
Theological studies	528 *	59	–	–	–	–	59	–	–	–	–	28 **	22 **
Mathematics and physical sciences	2,523	79	4 **	10 *	6 *	11 *	83	7 *	–	7 *	–	33	39
Chemistry	313 *	58	–	21 **	17 **	25 **	80	–	–	–	–	26 *	34 *
Computer science	1,189	85	–	–	–	–	87	–	–	–	–	35	40
Geology and related	–	56 *	–	32 **	–	36 **	52 *	–	–	–	–	35 **	40 **
Mathematics	769	87	–	–	–	–	86	10 **	–	–	–	30	38
Physics	–	54 **	–	-	–	-	–	–	–	–	–	–	–
Other physics	–	54 **	–	-	–	-	–	–	–	–	–	–	–
Other physical sciences	–	83	-	-	–	-	100	-	-	-	-	–	–
Social sciences (excluding business and commerce)	15,414	69	12	10	10	11	74	12	6	8	6	29	35
Anthropology	343 *	48 *	–	–	–	–	51 *	–	–	–	–	–	31 **
Archaeology	–	–	-	–	–	–	–	–	-	–	-	17 **	–
Canadian and area studies	–	68 *	–	–	–	–	85	-	–	–	–	–	–
Canadian studies	–	–	–	–	–	–	80	-	–	–	–	–	–
Economics	1,208	80	–	–	–	–	84	–	–	–	–	29	35
Geography	882	67	–	–	17 **	–	74	–	–	–	–	29 *	35 *
Law and jurisprudence	1,557	80	–	–	–	–	86	–	–	–	–	31	43
Man/environment studies	286 *	58 *	–	–	–	–	79	–	–	–	–	30 *	38 *
Regional, rural, urban, city planning and community development	–	66 *	–	–	–	–	79	-	–	–	–	30 **	42 **
Resource management, environmental studies	–	58 *	-	–	–	–	76	–	-	–	-	–	–
Political science	1,319	58	–	20 *	12 **	22 *	71	13 **	–	–	–	28	32
Psychology	5,337	62	15	12	12	13	73	17	5 **	6 *	5 **	28	35
Secretarial studies	208 **	100	-	-	-	-	79	-	–	–	–	23 **	29 **
Social work and social welfare	1,334	86	8 **	4 **	–	4 **	77	12 *	–	–	–	33	36
Sociology and criminology	2,711	70	13 *	8 *	9 **	9 *	69	14 *	7 **	10 *	7 **	26	32
Criminology	293 *	70	–	–	–	–	89	–	–	–	–	–	34 **
Sociology	2,418	70	12 *	8 **	10 **	8 **	66	15 *	7 **	11 *	8 **	24	32
Other social services	–	100	-	-	-	-	79 *	-	-	–	-	–	–

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-2. Characteristics of 1986 graduates by level, March 1991

	Trade/ vocational	Career/ technical	Total university	Bachelor's	Master's	Doctorate
1. Number of graduates	40,298	62,716	119,947	104,887	13,773	1,287
2. Characteristics of 1986 graduates						
2.1 Gender distribution (%)						
Men	55	45	46	45	54	65
Women	45	55	54	55	48	35
2.2 Age in 1986						
Age distribution (%)						
Less than 18	0 *	--	--	--	-	-
18-21	31	51	11	13	0 **	-
22-24	18	28	44	48	13	5
25-29	19	12	20	18	36	21
30-34	12	5	10	8	21	37
35-39	9	3	7	6	14	20
40+	10	3	8	6	16	18
Median age	25	21	24	23	30	33
2.3 Marital status distribution in 1991(%)						
Total						
Single	57	54	57	56	67	75
Married	34	43	38	40	26	19
Widowed, separated or divorced	9	4	5	4	7	6
2.4 Percent of graduates with dependent children in 1991 (%)						
Total	44	28	31	29	46	59
Men	38	23	30	27	49	64
Women	52	33	32	31	43	51
2.5 Percent of graduates with dependent children under the age of 5 in 1991 (%)						
Total	21	20	19	19	25	32
Men	23	17	21	19	28	36
Women	20	22	18	18	22	27
2.6 Employment equity groups in 1991 (%)						
Aboriginal people	4	2	1	1	1 *	0 *
Disabled persons	7	3	3	2	3	3
Visible minorities	7	6	8	7	8	13
2.7 Highest level of education completed by father (% distribution)						
No formal schooling	3	1	1	1	1	1
Elementary school	23	20	17	17	17	15
Some secondary school	20	20	16	16	15	15
Completed secondary school	17	23	22	22	22	25
Trade or vocational training	4	5	4	4	3	2
Some college, CEGEP, technical or nursing school	1	2	2	2	2	2
Completed college, CEGEP, technical or nursing school	2	5	3	3	3	3
Some university	1	2	3	3	2	3
Teacher's college	0 *	1 *	1	1	0 *	1 *
Completed university degree, certificate or diploma	5	11	25	24	28	31
Undergraduate certificate or diploma	1	1	1	1	1	1 *
Bachelor's degree	3	6	12	12	13	15
Graduate certificate or diploma	0 *	0 *	1	1	1	1 *
Master's degree	1	2	4	4	5	6
Degree in medicine, dentistry or optometry	1	1	3	3	4	4
Earned doctorate	0 *	1	3	3	4	4
Don't know	21	9	4	4	3	1
Other	2	2	3	3	3	2
3. Labour market outcomes						
3.1 Labour force status, March 1991						
% working full-time	66	80	80	79	81	91
% working part-time	8	7	9	8	10	5
%working	75	88	88	88	91	96
% unemployed	17	7	6	6	4	2
% not in the labour force (not working and not looking for work or not available for work)	8	5	6	6	5	1 *
Unemployment rate	19	8	6	7	4	2
3.2 Job mobility between May 1988 and March 1991						
% working for the same employer	39	47	47	46	56	64
% working for a different employer	35	39	36	37	29	30
% not working in May 1988 but working in March 1991	3	2	6	6	6	3
% May 1988 workers in the same 4 digit SOC[1] occupation	56	57	56	55	59	69
% May 1988 workers in the same 3 digit SIC[2] industry	61	64	67	66	73	78
3.3 Relationship of job to education, for full-time paid workers in 1991						
% working in directly related job	61	67	59	58	64	75
% working partly related job	18	21	30	30	31	23
% working in unrelated job	21	12	11	12	5	2

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Table B-2. Characteristics of 1986 graduates by level, March 1991

	Trade/ vocational	Career/ technical	Total university	Bachelor's	Master's	Doctorate
3.4 March 1991 education requirements of March 1991 job for full-time workers						
Incomplete, no postsecondary education or trade/vocational diploma	82	39	15	17	7	1 *
No postsecondary education required	46	-	-	-	-	-
Incomplete postsecondary education[3]	10	-	-	-	-	-
Trade/vocational diploma	26	-	-	-	-	-
College diploma or certificate	13	51	8	8	2	0 **
University degree, certificate or diploma	3	8	75	73	90	98
Undergraduate degree, certificate or diploma	-	-	57	60	43	7
First professional degree	-	-	5	5	2	4
Graduate degree, certificate or diploma	-	-	13	8	45	87
Master's degree or graduate certificate	-	-	11	-	40	20
Doctorate	-	-	2	-	5	67
Other	2	2	2	2	1	1 *
4. Pursuit of further studies and attitude towards 1986 program						
4.1 Further studies after 1986						
% who pursued further studies	42	50	61	63	45	20
% who received a certificate, diploma or degree after graduation	30	31	41	43	23	14
% who pursued studies towards a trade/vocational certificate or diploma	16	7	3	3	2	1 **
% who pursued studies towards a college certificate or diploma	16	18	6	7	3	2
% who pursued studies towards a university certificate or diploma below bachelor's	2	6	10	10	4	2
% who pursued studies towards a bachelor's degree	3	12	12	14	3	1
% who pursued studies towards a university certificate or diploma above bachelor's	0 **	1	6	7	3	1 **
% who pursued studies towards a first professional degree	--	0 **	3	4	2	1
% who pursued studies towards a master's degree	--	1 *	14	15	5	2
% who pursued studies towards a doctoral degree	--	--	4	2	16	2
% who pursued studies towards a professional certification	1	5	7	8	5	4
% who pursued other studies	10	10	10	10	8	7
4.2 Retrospective choice of education program in 1991						
% who would select the same program again	63	63	72	71	82	81

[1]S.O.C. = Standard Occupational Classification
[2]S.I.C. = Standard Industrial Classification
[3]Includes incomplete trade/vocational education

SOURCE: Follow-up of 1986 Graduates Survey, March 1991 and National Graduates Survey, May/June 1988

Appendix C - List of Supplementary Tables

Any of the following tables can be ordered (in electronic or printed format) by contacting Philip Jennings of the Applied Research Branch at Human Resources Development Canada (Phone: (819) 994-4473 or Fax: (819) 953-8584)

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